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<140> 09/410,551

<141> 1999-10-01

<160> 71

<170> PatentIn Ver. 2.0

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Thr Pro Asp Ser Thr Arg Gly Ser Asp Thr Gly Val Phe Val Gly Ala	
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Phe Ser Tyr Gly Tyr Gly Thr Gly Ala Asp Thr Asp Gly Phe Gly Ala	
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Thr Gly Ser Gln Thr Ser Val Leu Ser Gly Arg Leu Ser Tyr Phe Tyr	
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Gly Leu Glu Gly Pro Ala Val Thr Val Asp Thr Ala Cys Ser Ser Ser	
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ctg gtg gcg ctg cac cag gcc ggg cag tcg ctg cgc tcc ggc gaa tgc	863
Leu Val Ala Leu His Gln Ala Gly Gln Ser Leu Arg Ser Gly Glu Cys	
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Ser Leu Ala Leu Val Gly Gly Val Thr Val Met Ala Ser Pro Gly Gly	
290 295 300	
ttc gtg gag ttc tcc cgg cag cgc ggc ctc gcg ccg gac ggc cgg gcg	959
Phe Val Glu Phe Ser Arg Gln Arg Gly Leu Ala Pro Asp Gly Arg Ala	
305 310 315	
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Lys Ala Phe Gly Ala Gly Ala Asp Gly Thr Ser Phe Ala Glu Gly Ala	
320 325 330 335	
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Gly Val Leu Ile Val Glu Arg Leu Ser Asp Ala Glu Arg Asn Gly His	
340 345 350	
acc gtc ctg gcg gtc gtc cgt ggt tcg gcg gtc aac cag gat ggt gcc	1103
Thr Val Leu Ala Val Val Arg Gly Ser Ala Val Asn Gln Asp Gly Ala	
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Ser Asn Gly Leu Ser Ala Pro Asn Gly Pro Ser Gln Glu Arg Val Ile	
370 375 380	
cgg cag gcc ctg gcc aac gcc ggg ctc acc ccg gcg gac gtg gac gcc	1199
Arg Gln Ala Leu Ala Asn Ala Gly Leu Thr Pro Ala Asp Val Asp Ala	
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gtc gag gcc cac ggc acc ggc acc agg ctg ggc gac ccc atc gag gca	1247
Val Glu Ala His Gly Thr Gly Thr Arg Leu Gly Asp Pro Ile Glu Ala	
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cag gcg gta ctg gcc acc tac gga cag gag cgc gcc acc ccc ctg ctg	1295
Gln Ala Val Leu Ala Thr Tyr Gly Gln Glu Arg Ala Thr Pro Leu Leu	
420 425 430	
ctg ggc tcg ctg aag tcc aac atc ggc cac gcc cag gcc gcg tcc ggc	1343
Leu Gly Ser Leu Lys Ser Asn Ile Gly His Ala Gln Ala Ala Ser Gly	
435 440 445	

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gtc gcc ggc atc atc aag atg gtg cag gcc ctc cgg cac ggg gag ctg	1391
Val Ala Gly Ile Ile Lys Met Val Gln Ala Leu Arg His Gly Glu Leu	
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ccg ccg acg ctg cac gcc gac gag ccg tcg ccg cac gtc gac tgg acg	1439
Pro Pro Thr Leu His Ala Asp Glu Pro Ser Pro His Val Asp Trp Thr	
465 470 475	
gcc ggc gcc gtc gaa ctg ctg acg tcg gcc cgg ccg tgg ccc gag acc	1487
Ala Gly Ala Val Glu Leu Leu Thr Ser Ala Arg Pro Trp Pro Glu Thr	
480 485 490 495	
gac cgg cct agg cgg gca ggc gtg tcg tcc ttc ggg atc agt ggc acc	1535
Asp Arg Pro Arg Arg Ala Gly Val Ser Ser Phe Gly Ile Ser Gly Thr	
500 505 510	
aac gcc cac gtc atc ctg gaa agc gca ccc ccc act cag cct gcg gac	1583
Asn Ala His Val Ile Leu Glu Ser Ala Pro Pro Thr Gln Pro Ala Asp	
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aac gcg gtg atc gag cgg gca ccg gag tgg gtg ccg ttg gtg att tcg	1631
Asn Ala Val Ile Glu Arg Ala Pro Glu Trp Val Pro Leu Val Ile Ser	
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gcc agg acc cag tcg gct ttg act gag cac gag ggc cgg ttg cgt gcg	1679
Ala Arg Thr Gln Ser Ala Leu Thr Glu His Glu Gly Arg Leu Arg Ala	
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tat ctg gcg gcg tcg ccc ggg gtg gat atg cgg gct gtg gca tcg acg	1727
Tyr Leu Ala Ala Ser Pro Gly Val Asp Met Arg Ala Val Ala Ser Thr	
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ctg gcg atg aca cgg tcg gtg ttc gag cac cgt gcc gtg ctg ctg gga	1775
Leu Ala Met Thr Arg Ser Val Phe Glu His Arg Ala Val Leu Leu Gly	
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gat gac acc gtc acc ggc acc gct gtg tct gac cct cgg gcg gtg ttc	1823
Asp Asp Thr Val Thr Gly Thr Ala Val Ser Asp Pro Arg Ala Val Phe	
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Val Phe Pro Gly Gln Gly Ser Gln Arg Ala Gly Met Gly Glu Glu Leu	
610 615 620	
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Ala Ala Ala Phe Pro Val Phe Ala Arg Ile His Gln Gln Val Trp Asp	
625 630 635	
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Leu Leu Asp Val Pro Asp Leu Glu Val Asn Glu Thr Gly Tyr Ala Gln	
640 645 650 655	
ccg gcc ctg ttc gca atg cag gtg gct ctg ttc ggg ctg ctg gaa tcg	2015
Pro Ala Leu Phe Ala Met Gln Val Ala Leu Phe Gly Leu Leu Glu Ser	
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Trp Gly Val Arg Pro Asp Ala Val Ile Gly His Ser Val Gly Glu Leu	
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gcg gct gcg tat gtg tcc ggg gtg tgg tcg ttg gag gat gcc tgc act	2111
Ala Ala Ala Tyr Val Ser Gly Val Trp Ser Leu Glu Asp Ala Cys Thr	
690 695 700	
ttg gtg tcg gcg ccg gct cgt ctg atg cag gct ctg ccc gcg ggt ggg	2159
Leu Val Ser Ala Arg Ala Arg Leu Met Gln Ala Leu Pro Ala Gly Gly	
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gtg atg gtc gct gtc ccg gtc tcg gag gat gag gcc ccg gcc gtg ctg	2207
Val Met Val Ala Val Pro Val Ser Glu Asp Glu Ala Arg Ala Val Leu	
720 725 730 735	
ggg gag ggt gtg gag atc gcc gcg gtc aac ggc ccg tcg tcg gtg gtt	2255
Gly Glu Gly Val Glu Ile Ala Ala Val Asn Gly Pro Ser Ser Val Val	
740 745 750	
ctc tcc ggt gat gag gcc gcc gtg ctg cag gcc gcg gag ggg ctg ggg	2303
Leu Ser Gly Asp Glu Ala Ala Val Leu Gln Ala Ala Glu Gly Leu Gly	
755 760 765	
aag tgg acg ccg ctg gcg acc agc cac gcg ttc cat tcc gcc cgt atg	2351
Lys Trp Thr Arg Leu Ala Thr Ser His Ala Phe His Ser Ala Arg Met	
770 775 780	
gaa ccc atg ctg gag gag ttc ccg gcg gtc gcc gaa ggc ctg acc tac	2399
Glu Pro Met Leu Glu Glu Phe Arg Ala Val Ala Glu Gly Leu Thr Tyr	
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ccg acg ccg cag gtc tcc atg gcc gtt ggt gat cag gtg acc acc gct	2447
Arg Thr Pro Gln Val Ser Met Ala Val Gly Asp Gln Val Thr Thr Ala	
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gag tac tgg gtg ccg cag gtc ccg gac acg gtc ccg ttc ggc gag cag	2495
Glu Tyr Trp Val Arg Gln Val Arg Asp Thr Val Arg Phe Gly Glu Gln	
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Val Ala Ser Tyr Glu Asp Ala Val Phe Val Glu Leu Gly Ala Asp Arg	
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Ser Leu Ala Arg Leu Val Asp Gly Val Ala Met Leu His Gly Asp His	
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gaa atc cag gcc gcg atc ggc gcc ctg gcc cac ctg tat gtc aac ggc	2639
Glu Ile Gln Ala Ala Ile Gly Ala Leu Ala His Leu Tyr Val Asn Gly	
865 870 875	
gtc acg gtc gac tgg ccc gcg ctc ctg ggc gat gct ccg gca aca ccg	2687
Val Thr Val Asp Trp Pro Ala Leu Leu Gly Asp Ala Pro Ala Thr Arg	
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Val Leu Asp Leu Pro Thr Tyr Ala Phe Gln His Gln Arg Tyr Trp Leu	
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gag tcg gca cgc ccg gcc gca tcc gac gcg ggc cac ccc gtg ctg ggc	2783
Glu Ser Ala Arg Pro Ala Ala Ser Asp Ala Gly His Pro Val Leu Gly	
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Ser Gly Ile Ala Leu Ala Gly Ser Pro Gly Arg Val Phe Thr Gly Ser	
930 935 940	
gtg ccg acc ggt gcg gac cgc gcg gtg ttc gtc gcc gag ctg gcg ctg	2879
Val Pro Thr Gly Ala Asp Arg Ala Val Phe Val Ala Glu Leu Ala Leu	
945 950 955	
gcc gcc gcg gac gcg gtc gac tgc gcc acg gtc gag cgg ctc gac atc	2927
Ala Ala Ala Asp Ala Val Asp Cys Ala Thr Val Glu Arg Leu Asp Ile	
960 965 970 975	
gcc tcc gtg ccc ggc cgg ccg ggc cat ggc cgg acg acc gta cag acc	2975
Ala Ser Val Pro Gly Arg Pro Gly His Gly Arg Thr Thr Val Gln Thr	
980 985 990	
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Trp Val Asp Glu Pro Ala Asp Asp Gly Arg Arg Arg Phe Thr Val His	
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Thr Arg Thr Gly Asp Ala Pro Trp Thr Leu His Ala Glu Gly Val Leu	
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cgc ccc cat ggc acg gcc ctg ccc gat gcg gcc gac gcc gag tgg ccc	3119
Arg Pro His Gly Thr Ala Leu Pro Asp Ala Ala Asp Ala Glu Trp Pro	
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cca ccg ggc gcg gtg ccc gcg gac ggg ctg ccg ggt gtg tgg cgc cgg	3167
Pro Pro Gly Ala Val Pro Ala Asp Gly Leu Pro Gly Val Trp Arg Arg	
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ggg gac cag gtc ttc gcc gag gcc gag gtg gac gga ccg gac ggt ttc	3215
Gly Asp Gln Val Phe Ala Glu Ala Glu Val Asp Gly Pro Asp Gly Phe	
1060 1065 1070	
gtg gtg cac ccc gac ctg ctc gac gcg gtc ttc tcc gcg gtc ggc gac	3263
Val Val His Pro Asp Leu Leu Asp Ala Val Phe Ser Ala Val Gly Asp	
1075 1080 1085	
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Gly Ser Arg Gln Pro Ala Gly Trp Arg Asp Leu Thr Val His Ala Ser	
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gac gcc acc gta ctg cgc gcc tgc ctc acc cgg cgc acc gac gga gcc	3359
Asp Ala Thr Val Leu Arg Ala Cys Leu Thr Arg Arg Thr Asp Gly Ala	
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09040315 082701



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 1120 1125 1130 1135

gag gcg gtg acg ctg cgg gag gtg gcg tca ccg tcc ggc tcc gag gag 3455  
 Glu Ala Val Thr Leu Arg Glu Val Ala Ser Pro Ser Gly Ser Glu Glu  
 1140 1145 1150

tcg gac ggc ctg cac cgg ttg gag tgg ctc gcg gtc gcc gag gcg gtc 3503  
 Ser Asp Gly Leu His Arg Leu Glu Trp Leu Ala Val Ala Glu Ala Val  
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tac gac ggt gac ctg ccc gag gga cat gtc ctg atc acc gcc gcc cac 3551  
 Tyr Asp Gly Asp Leu Pro Glu Gly His Val Leu Ile Thr Ala Ala His  
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ccc gac gac ccc gag gac ata ccc acc cgc gcc cac acc cgc gcc acc 3599  
 Pro Asp Asp Pro Glu Asp Ile Pro Thr Arg Ala His Thr Arg Ala Thr  
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cgc gtc ctg acc gcc ctg caa cac cac ctc acc acc acc gac cac acc 3647  
 Arg Val Leu Thr Ala Leu Gln His His Leu Thr Thr Thr Asp His Thr  
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ctc atc gtc cac acc acc acc gac ccc gcc ggc gcc acc gtc acc ggc 3695  
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ctc acc cgc acc gcc cag aac gaa cac ccc cac cgc atc cgc ctc atc 3743  
 Leu Thr Arg Thr Ala Gln Asn Glu His Pro His Arg Ile Arg Leu Ile  
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gaa acc gac cac ccc cac acc ccc ctc ccc ctg gcc caa ctc gcc acc 3791  
 Glu Thr Asp His Pro His Thr Pro Leu Pro Leu Ala Gln Leu Ala Thr  
 1250 1255 1260

ctc gac cac ccc cac ctc cgc ctc acc cac cac acc ctc cac cac ccc 3839  
 Leu Asp His Pro His Leu Arg Leu Thr His His Thr Leu His His Pro  
 1265 1270 1275

cac ctc acc ccc ctc cac acc acc acc cca ccc acc acc acc ccc ctc 3887  
 His Leu Thr Pro Leu His Thr Thr Thr Pro Pro Thr Thr Thr Pro Leu  
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aac ccc gaa cac gcc atc atc atc acc ggc ggc tcc ggc acc ctc gcc 3935  
 Asn Pro Glu His Ala Ile Ile Ile Thr Gly Gly Ser Gly Thr Leu Ala  
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ggc atc ctc gcc cgc cac ctg aac cac ccc cac acc tac ctc ctc tcc 3983  
 Gly Ile Leu Ala Arg His Leu Asn His Pro His Thr Tyr Leu Leu Ser  
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cgc acc cca ccc ccc gac gcc acc ccc ggc acc cac ctc ccc tgc gac 4031  
 Arg Thr Pro Pro Pro Asp Ala Thr Pro Gly Thr His Leu Pro Cys Asp  
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09940315 08270  
 102280 97E04650

gtc ggc gac ccc cac caa ctc gcc acc acc ctc acc cac atc ccc caa 4079  
 Val Gly Asp Pro His Gln Leu Ala Thr Thr Leu Thr His Ile Pro Gln  
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 ccc ctc acc gcc atc ttc cac acc gcc gcc acc ctc gac gac ggc atc 4127  
 Pro Leu Thr Ala Ile Phe His Thr Ala Ala Thr Leu Asp Asp Gly Ile  
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 Leu His Ala Leu Thr Pro Asp Arg Leu Thr Thr Val Leu His Pro Lys  
 1380 1385 1390  
 gcc aac gcc gcc tgg cac ctg cac cac ctc acc caa aac caa ccc ctc 4223  
 Ala Asn Ala Ala Trp His Leu His His Leu Thr Gln Asn Gln Pro Leu  
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 Thr His Phe Val Leu Tyr Ser Ser Ala Ala Ala Val Leu Gly Ser Pro  
 1410 1415 1420  
 gga caa gga aac tac gcc gcc gcc aac gcc ttc ctc gac gcc ctc gcc 4319  
 Gly Gln Gly Asn Tyr Ala Ala Ala Asn Ala Phe Leu Asp Ala Leu Ala  
 1425 1430 1435  
 acc cac cgc cac acc ctc ggc caa ccc gcc acc tcc atc gcc tgg ggc 4367  
 Thr His Arg His Thr Leu Gly Gln Pro Ala Thr Ser Ile Ala Trp Gly  
 1440 1445 1450 1455  
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 Met Trp His Thr Thr Ser Thr Leu Thr Gly Gln Leu Asp Asp Ala Asp  
 1460 1465 1470  
 cgg gac cgc atc cgc cgc ggc ggt ttc ctc ccg atc acg gac gac gag 4463  
 Arg Asp Arg Ile Arg Arg Gly Gly Phe Leu Pro Ile Thr Asp Asp Glu  
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 ggc atggggatgc at 4478  
 Gly

<210> 17

<211> 1488

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic PKS  
synthase fragment

<400> 17

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1 5 10 15

Ala Ala Val Leu Gly His Val Gly Gly Glu Asp Ile Pro Ala Thr Ala  
20 25 30

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35						40						45			
Asn	Ala	Leu	Thr	Glu	Ala	Thr	Gly	Val	Arg	Leu	Asn	Ala	Thr	Ala	Val
50						55				60					
Phe	Asp	Phe	Pro	Thr	Pro	His	Val	Leu	Ala	Gly	Lys	Leu	Gly	Asp	Glu
65						70				75				80	
Leu	Thr	Gly	Thr	Arg	Ala	Pro	Val	Val	Pro	Arg	Thr	Ala	Ala	Thr	Ala
				85				90						95	
Gly	Ala	His	Asp	Glu	Pro	Leu	Ala	Ile	Val	Gly	Met	Ala	Cys	Arg	Leu
		100						105				110			
Pro	Gly	Gly	Val	Ala	Ser	Pro	Glu	Glu	Leu	Trp	His	Leu	Val	Ala	Ser
		115				120						125			
Gly	Thr	Asp	Ala	Ile	Thr	Glu	Phe	Pro	Thr	Asp	Arg	Gly	Trp	Asp	Val
130						135				140					
Asp	Ala	Ile	Tyr	Asp	Pro	Asp	Pro	Asp	Ala	Ile	Gly	Lys	Thr	Phe	Val
145						150				155				160	
Arg	His	Gly	Gly	Phe	Leu	Thr	Gly	Ala	Thr	Gly	Phe	Asp	Ala	Ala	Phe
				165				170						175	
Phe	Gly	Ile	Ser	Pro	Arg	Glu	Ala	Leu	Ala	Met	Asp	Pro	Gln	Gln	Arg
		180						185				190			
Val	Leu	Leu	Glu	Thr	Ser	Trp	Glu	Ala	Phe	Glu	Ser	Ala	Gly	Ile	Thr
195						200						205			
Pro	Asp	Ser	Thr	Arg	Gly	Ser	Asp	Thr	Gly	Val	Phe	Val	Gly	Ala	Phe
210						215				220					
Ser	Tyr	Gly	Tyr	Gly	Thr	Gly	Ala	Asp	Thr	Asp	Gly	Phe	Gly	Ala	Thr
225						230				235				240	
Gly	Ser	Gln	Thr	Ser	Val	Leu	Ser	Gly	Arg	Leu	Ser	Tyr	Phe	Tyr	Gly
				245				250						255	
Leu	Glu	Gly	Pro	Ala	Val	Thr	Val	Asp	Thr	Ala	Cys	Ser	Ser	Ser	Leu
		260						265				270			
Val	Ala	Leu	His	Gln	Ala	Gly	Gln	Ser	Leu	Arg	Ser	Gly	Glu	Cys	Ser
275						280						285			
Leu	Ala	Leu	Val	Gly	Gly	Val	Thr	Val	Met	Ala	Ser	Pro	Gly	Gly	Phe
290						295				300					
Val	Glu	Phe	Ser	Arg	Gln	Arg	Gly	Leu	Ala	Pro	Asp	Gly	Arg	Ala	Lys
305						310				315				320	
Ala	Phe	Gly	Ala	Gly	Ala	Asp	Gly	Thr	Ser	Phe	Ala	Glu	Gly	Ala	Gly
				325				330						335	

Val Leu Ile Val Glu Arg Leu Ser Asp Ala Glu Arg Asn Gly His Thr  
 340 345 350  
 Val Leu Ala Val Val Arg Gly Ser Ala Val Asn Gln Asp Gly Ala Ser  
 355 360 365  
 Asn Gly Leu Ser Ala Pro Asn Gly Pro Ser Gln Glu Arg Val Ile Arg  
 370 375 380  
 Gln Ala Leu Ala Asn Ala Gly Leu Thr Pro Ala Asp Val Asp Ala Val  
 385 390 395 400  
 Glu Ala His Gly Thr Gly Thr Arg Leu Gly Asp Pro Ile Glu Ala Gln  
 405 410 415  
 Ala Val Leu Ala Thr Tyr Gly Gln Glu Arg Ala Thr Pro Leu Leu Leu  
 420 425 430  
 Gly Ser Leu Lys Ser Asn Ile Gly His Ala Gln Ala Ala Ser Gly Val  
 435 440 445  
 Ala Gly Ile Ile Lys Met Val Gln Ala Leu Arg His Gly Glu Leu Pro  
 450 455 460  
 Pro Thr Leu His Ala Asp Glu Pro Ser Pro His Val Asp Trp Thr Ala  
 465 470 475 480  
 Gly Ala Val Glu Leu Leu Thr Ser Ala Arg Pro Trp Pro Glu Thr Asp  
 485 490 495  
 Arg Pro Arg Arg Ala Gly Val Ser Ser Phe Gly Ile Ser Gly Thr Asn  
 500 505 510  
 Ala His Val Ile Leu Glu Ser Ala Pro Pro Thr Gln Pro Ala Asp Asn  
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 Ala Val Ile Glu Arg Ala Pro Glu Trp Val Pro Leu Val Ile Ser Ala  
 530 535 540  
 Arg Thr Gln Ser Ala Leu Thr Glu His Glu Gly Arg Leu Arg Ala Tyr  
 545 550 555 560  
 Leu Ala Ala Ser Pro Gly Val Asp Met Arg Ala Val Ala Ser Thr Leu  
 565 570 575  
 Ala Met Thr Arg Ser Val Phe Glu His Arg Ala Val Leu Leu Gly Asp  
 580 585 590  
 Asp Thr Val Thr Gly Thr Ala Val Ser Asp Pro Arg Ala Val Phe Val  
 595 600 605  
 Phe Pro Gly Gln Gly Ser Gln Arg Ala Gly Met Gly Glu Glu Leu Ala  
 610 615 620  
 Ala Ala Phe Pro Val Phe Ala Arg Ile His Gln Gln Val Trp Asp Leu  
 625 630 635 640

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Leu	Asp	Val	Pro	Asp	Leu	Glu	Val	Asn	Glu	Thr	Gly	Tyr	Ala	Gln	Pro	
				645					650					655		
Ala	Leu	Phe	Ala	Met	Gln	Val	Ala	Leu	Phe	Gly	Leu	Leu	Glu	Ser	Trp	
				660					665					670		
Gly	Val	Arg	Pro	Asp	Ala	Val	Ile	Gly	His	Ser	Val	Gly	Glu	Leu	Ala	
				675					680					685		
Ala	Ala	Tyr	Val	Ser	Gly	Val	Trp	Ser	Leu	Glu	Asp	Ala	Cys	Thr	Leu	
				690					695					700		
Val	Ser	Ala	Arg	Ala	Arg	Leu	Met	Gln	Ala	Leu	Pro	Ala	Gly	Gly	Val	
				705					710					715		
Met	Val	Ala	Val	Pro	Val	Ser	Glu	Asp	Glu	Ala	Arg	Ala	Val	Leu	Gly	
				725					730					735		
Glu	Gly	Val	Glu	Ile	Ala	Ala	Val	Asn	Gly	Pro	Ser	Ser	Val	Val	Leu	
				740					745					750		
Ser	Gly	Asp	Glu	Ala	Ala	Val	Leu	Gln	Ala	Ala	Glu	Gly	Leu	Gly	Lys	
				755					760					765		
Trp	Thr	Arg	Leu	Ala	Thr	Ser	His	Ala	Phe	His	Ser	Ala	Arg	Met	Glu	
				770					775					780		
Pro	Met	Leu	Glu	Glu	Phe	Arg	Ala	Val	Ala	Glu	Gly	Leu	Thr	Tyr	Arg	
				785					790					795		
Thr	Pro	Gln	Val	Ser	Met	Ala	Val	Gly	Asp	Gln	Val	Thr	Thr	Ala	Glu	
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Tyr	Trp	Val	Arg	Gln	Val	Arg	Asp	Thr	Val	Arg	Phe	Gly	Glu	Gln	Val	
				820					825					830		
Ala	Ser	Tyr	Glu	Asp	Ala	Val	Phe	Val	Glu	Leu	Gly	Ala	Asp	Arg	Ser	
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Leu	Ala	Arg	Leu	Val	Asp	Gly	Val	Ala	Met	Leu	His	Gly	Asp	His	Glu	
				850					855					860		
Ile	Gln	Ala	Ala	Ile	Gly	Ala	Leu	Ala	His	Leu	Tyr	Val	Asn	Gly	Val	
				865					870					875		
Thr	Val	Asp	Trp	Pro	Ala	Leu	Leu	Gly	Asp	Ala	Pro	Ala	Thr	Arg	Val	
				885					890					895		
Leu	Asp	Leu	Pro	Thr	Tyr	Ala	Phe	Gln	His	Gln	Arg	Tyr	Trp	Leu	Glu	
				900					905					910		
Ser	Ala	Arg	Pro	Ala	Ala	Ser	Asp	Ala	Gly	His	Pro	Val	Leu	Gly	Ser	
				915					920					925		
Gly	Ile	Ala	Leu	Ala	Gly	Ser	Pro	Gly	Arg	Val	Phe	Thr	Gly	Ser	Val	
				930					935					940		

Pro Thr Gly Ala Asp Arg Ala Val Phe Val Ala Glu Leu Ala Leu Ala  
 945 950 955 960  
 Ala Ala Asp Ala Val Asp Cys Ala Thr Val Glu Arg Leu Asp Ile Ala  
 965 970 975  
 Ser Val Pro Gly Arg Pro Gly His Gly Arg Thr Thr Val Gln Thr Trp  
 980 985 990  
 Val Asp Glu Pro Ala Asp Asp Gly Arg Arg Arg Phe Thr Val His Thr  
 995 1000 1005  
 Arg Thr Gly Asp Ala Pro Trp Thr Leu His Ala Glu Gly Val Leu Arg  
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 Pro His Gly Thr Ala Leu Pro Asp Ala Ala Asp Ala Glu Trp Pro Pro  
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 Pro Gly Ala Val Pro Ala Asp Gly Leu Pro Gly Val Trp Arg Arg Gly  
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 Asp Gln Val Phe Ala Glu Ala Glu Val Asp Gly Pro Asp Gly Phe Val  
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 Val His Pro Asp Leu Leu Asp Ala Val Phe Ser Ala Val Gly Asp Gly  
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 Ser Arg Gln Pro Ala Gly Trp Arg Asp Leu Thr Val His Ala Ser Asp  
 1090 1095 1100  
 Ala Thr Val Leu Arg Ala Cys Leu Thr Arg Arg Thr Asp Gly Ala Met  
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 Val Leu Thr Ala Leu Gln His His Leu Thr Thr Thr Asp His Thr Leu  
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 Ile Val His Thr Thr Thr Asp Pro Ala Gly Ala Thr Val Thr Gly Leu  
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Pro Glu His Ala Ile Ile Ile Thr Gly Gly Ser Gly Thr Leu Ala Gly  
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Leu Thr Ala Ile Phe His Thr Ala Ala Thr Leu Asp Asp Gly Ile Leu  
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His Ala Leu Thr Pro Asp Arg Leu Thr Thr Val Leu His Pro Lys Ala  
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Gln Gly Asn Tyr Ala Ala Ala Asn Ala Phe Leu Asp Ala Leu Ala Thr  
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Phe	Asp	Phe	Pro	Thr	Pro	His	Val	Leu	Ala	Gly	Lys	Leu	Gly	Asp	Glu	
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Leu	Thr	Gly	Thr	Arg	Ala	Pro	Val	Val	Pro	Arg	Thr	Ala	Ala	Thr	Ala	
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Pro	Gly	Gly	Val	Ala	Ser	Pro	Glu	Glu	Leu	Trp	His	Leu	Val	Ala	Ser	
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Val Ala Leu His Gln Ala Gly Gln Ser Leu Arg Ser Gly Glu Cys Ser	
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Val Leu Ala Val Val Arg Gly Ser Ala Val Asn Gln Asp Gly Ala Ser	
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Asp Asp Asp Val Val Thr Val Ala Thr Leu Arg Arg Asp Asp Gly Asp	
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 Gly Pro Ala Val Thr Val Asp Thr Ala Cys Ser Ser Ser Leu Val Ala  
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 Pro Asp Ala Val Ile Gly His Ser Gln Gly Glu Ile Ala Ala Ala Cys  
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Glu Asp Ile Pro Thr Arg Ala His Thr Arg Ala Thr Arg Val Leu Thr  
 1220 1225 1230  
 Ala Leu Gln His His Leu Thr Thr Thr Asp His Thr Leu Ile Val His  
 1235 1240 1245  
 Thr Thr Thr Asp Pro Ala Gly Ala Thr Val Thr Gly Leu Thr Arg Thr  
 1250 1255 1260  
 Ala Gln Asn Glu His Pro His Arg Ile Arg Leu Ile Glu Thr Asp His  
 1265 1270 1275 1280  
 Pro His Thr Pro Leu Pro Leu Ala Gln Leu Ala Thr Leu Asp His Pro  
 1285 1290 1295  
 His Leu Arg Leu Thr His His Thr Leu His His Pro His Leu Thr Pro  
 1300 1305 1310  
 Leu His Thr Thr Thr Pro Pro Thr Thr Thr Pro Leu Asn Pro Glu His  
 1315 1320 1325  
 Ala Ile Ile Ile Thr Gly Gly Ser Gly Thr Leu Ala Gly Ile Leu Ala  
 1330 1335 1340  
 Arg His Leu Asn His Pro His Thr Tyr Leu Leu Ser Arg Thr Pro Pro  
 1345 1350 1355 1360  
 Pro Asp Ala Thr Pro Gly Thr His Leu Pro Cys Asp Val Gly Asp Pro  
 1365 1370 1375  
 His Gln Leu Ala Thr Thr Leu Thr His Ile Pro Gln Pro Leu Thr Ala  
 1380 1385 1390  
 Ile Phe His Thr Ala Ala Thr Leu Asp Asp Gly Ile Leu His Ala Leu  
 1395 1400 1405  
 Thr Pro Asp Arg Leu Thr Thr Val Leu His Pro Lys Ala Asn Ala Ala  
 1410 1415 1420  
 Trp His Leu His His Leu Thr Gln Asn Gln Pro Leu Thr His Phe Val  
 1425 1430 1435 1440  
 Leu Tyr Ser Ser Ala Ala Ala Val Leu Gly Ser Pro Gly Gln Gly Asn  
 1445 1450 1455  
 Tyr Ala Ala Ala Asn Ala Phe Leu Asp Ala Leu Ala Thr His Arg His  
 1460 1465 1470  
 Thr Leu Gly Gln Pro Ala Thr Ser Ile Ala Trp Gly Met Trp His Thr  
 1475 1480 1485  
 Thr Ser Thr Leu Thr Gly Gln Leu Asp Asp Ala Asp Arg Asp Arg Ile  
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 102280-9FE04650

<210> 20  
 <211> 4466  
 <212> DNA  
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<220>  
 <223> Description of Artificial Sequence: DNA encoding synthetic  
 PKS synthase fragment

<220>  
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 <222> (9)..(4454)

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           1                          5                          10

gcc gcc gtg ctc ggc cac gtg ggt ggc gag gac atc ccc gcg acg gcg 98  
 Ala Ala Val Leu Gly His Val Gly Gly Glu Asp Ile Pro Ala Thr Ala  
   15                          20                          25                          30

gcg ttc aag gac ctc ggc atc gac tcg ctc acc gcg gtc cag ctg cgc 146  
 Ala Phe Lys Asp Leu Gly Ile Asp Ser Leu Thr Ala Val Gln Leu Arg  
                           35                          40                          45

aac gcc ctc acc gag gcg acc ggt gtg cgg ctg aac gcc acg gcg gtc 194  
 Asn Ala Leu Thr Glu Ala Thr Gly Val Arg Leu Asn Ala Thr Ala Val  
                           50                          55                          60

ttc gac ttc ccg acc ccg cac gtg ctc gcc ggg aag ctc ggc gac gaa 242  
 Phe Asp Phe Pro Thr Pro His Val Leu Ala Gly Lys Leu Gly Asp Glu  
                           65                          70                          75

ctg acc ggc acc cgc gcg ccc gtc gtg ccc cgg acc gcg gcc acg gcc 290  
 Leu Thr Gly Thr Arg Ala Pro Val Val Pro Arg Thr Ala Ala Thr Ala  
   80                          85                          90

ggt gcg cac gac gag ccg ctg gcg atc gtg gga atg gcc tgc cgg ctg 338  
 Gly Ala His Asp Glu Pro Leu Ala Ile Val Gly Met Ala Cys Arg Leu  
   95                          100                          105                          110

ccc ggc ggg gtc gcg tca ccc gag gag ctg tgg cac ctc gtg gca tcc 386  
 Pro Gly Gly Val Ala Ser Pro Glu Glu Leu Trp His Leu Val Ala Ser  
                           115                          120                          125

ggc acc gac gcc atc acg gag ttc ccg acg gac cgc ggc tgg gac gtc 434  
 Gly Thr Asp Ala Ile Thr Glu Phe Pro Thr Asp Arg Gly Trp Asp Val  
                           130                          135                          140

gac gcg atc tac gac ccg gac ccc gac gcg atc ggc aag acc ttc gtc 482  
 Asp Ala Ile Tyr Asp Pro Asp Pro Asp Ala Ile Gly Lys Thr Phe Val  
                           145                          150                          155

cgg cac ggt ggc ttc ctc acc ggc gcg aca ggc ttc gac gcg gcg ttc 530  
 Arg His Gly Gly Phe Leu Thr Gly Ala Thr Gly Phe Asp Ala Ala Phe  
   160                          165                          170

FOZ280"9FE0H560

ttc ggc atc agc ccg cgc gag gcc ctc gcg atg gac ccg cag cag cgg	578
Phe Gly Ile Ser Pro Arg Glu Ala Leu Ala Met Asp Pro Gln Gln Arg	
175 180 185 190	
gtg ctc ctg gag acg tcg tgg gag gcg ttc gaa agc gcc ggc atc acc	626
Val Leu Leu Glu Thr Ser Trp Glu Ala Phe Glu Ser Ala Gly Ile Thr	
195 200 205	
ccg gac tcg acc cgc ggc agc gac acc ggc gtg ttc gtc ggc gcc ttc	674
Pro Asp Ser Thr Arg Gly Ser Asp Thr Gly Val Phe Val Gly Ala Phe	
210 215 220	
tcc tac ggt tac ggc acc ggt gcg gac acc gac ggc ttc ggc gcg acc	722
Ser Tyr Gly Tyr Gly Thr Gly Ala Asp Thr Asp Gly Phe Gly Ala Thr	
225 230 235	
ggc tcg cag acc agt gtg ctc tcc ggc cgg ctg tcg tac ttc tac ggt	770
Gly Ser Gln Thr Ser Val Leu Ser Gly Arg Leu Ser Tyr Phe Tyr Gly	
240 245 250	
ctg gag ggt ccg gcg gtc acg gtc gac acg gcg tgt tcg tcg tcg ctg	818
Leu Glu Gly Pro Ala Val Thr Val Asp Thr Ala Cys Ser Ser Ser Leu	
255 260 265 270	
gtg gcg ctg cac cag gcc ggg cag tcg ctg cgc tcc ggc gaa tgc tcg	866
Val Ala Leu His Gln Ala Gly Gln Ser Leu Arg Ser Gly Glu Cys Ser	
275 280 285	
ctc gcc ctg gtc ggc ggc gtc acg gtg atg gcg tct ccc ggc ggc ttc	914
Leu Ala Leu Val Gly Gly Val Thr Val Met Ala Ser Pro Gly Gly Phe	
290 295 300	
gtg gag ttc tcc cgg cag cgc ggc ctc gcg ccg gac ggc cgg gcg aag	962
Val Glu Phe Ser Arg Gln Arg Gly Leu Ala Pro Asp Gly Arg Ala Lys	
305 310 315	
gcg ttc ggc gcg ggt gcg gac ggc acg agc ttc gcc gag ggt gcc ggt	1010
Ala Phe Gly Ala Gly Ala Asp Gly Thr Ser Phe Ala Glu Gly Ala Gly	
320 325 330	
gtg ctg atc gtc gag agg ctc tcc gac gcc gaa cgc aac ggt cac acc	1058
Val Leu Ile Val Glu Arg Leu Ser Asp Ala Glu Arg Asn Gly His Thr	
335 340 345 350	
gtc ctg gcg gtc gtc cgt ggt tcg gcg gtc aac cag gat ggt gcc tcc	1106
Val Leu Ala Val Val Arg Gly Ser Ala Val Asn Gln Asp Gly Ala Ser	
355 360 365	
aac ggg ctg tcg gcg ccg aac ggg ccg tcg cag gag cgg gtg atc cgg	1154
Asn Gly Leu Ser Ala Pro Asn Gly Pro Ser Gln Glu Arg Val Ile Arg	
370 375 380	
cag gcc ctg gcc aac gcc ggg ctc acc ccg gcg gac gtg gac gcc gtc	1202
Gln Ala Leu Ala Asn Ala Gly Leu Thr Pro Ala Asp Val Asp Ala Val	
385 390 395	

0940315-08270

gag Glu	gcc Ala 400	cac His	ggc Gly	acc Thr	ggc Gly 405	acc Thr	agg Arg	ctg Leu	ggc Gly	gac Asp 410	ccc Pro	atc Ile	gag Glu	gca Ala	cag Gln	1250
gcg Ala 415	gta Val	ctg Leu	gcc Ala	acc Thr 420	tac Tyr	gga Gly	cag Gln	gag Glu	cgc Arg	gcc Ala 425	acc Thr	ccc Pro	ctg Leu	ctg Leu	ctg Leu 430	1298
ggc Gly	tcg Ser	ctg Leu	aag Lys 435	tcc Ser	aac Asn	atc Ile	ggc Gly	cac His	gcc Ala 440	cag Gln	gcc Ala	gcg Ala	tcc Ser	ggc Gly 445	gtc Val	1346
gcc Ala	ggc Gly	atc Ile 450	atc Ile	aag Lys 450	atg Met	gtg Val	cag Gln	gcc Ala 455	ctc Leu	cgg Arg	cac His	ggg Gly 460	gag Glu	ctg Leu	ccg Pro	1394
ccg Pro	acg Thr 465	ctg Leu	cac His	gcc Ala	gac Asp	gag Glu 470	ccg Pro	tcg Ser	ccg Pro	cac His	gtc Val 475	gac Asp	tgg Trp	acg Thr	gcc Ala	1442
ggc Gly 480	gcc Ala	gtc Val	gaa Glu	ctg Leu	ctg Leu	acg Thr 485	tcg Ser	gcc Ala	cgg Arg	ccg Pro 490	tgg Trp	ccc Pro	gag Glu	acc Thr	gac Asp	1490
cgg Arg 495	cca Pro	cgg Arg	cgt Arg	gcc Ala 500	gcc Ala	gtc Val	tcc Ser	tcg Ser	ttc Phe	ggg Gly 505	gtg Val	agc Ser	ggc Gly	acc Thr 510	aac Asn	1538
gcc Ala	cac His	gtc Val 515	atc Ile	ctg Leu 515	gag Glu	gcc Ala	gga Gly	ccg Pro	gta Val 520	acg Thr	gag Glu	acg Thr	ccc Pro	gcg Ala 525	gca Ala	1586
tcg Ser	cct Pro	tcc Ser 530	ggt Gly	gac Asp	ctt Leu	ccc Pro	ctg Leu	ctg Leu 535	gtg Val	tcg Ser	gca Ala	cgc Arg	tca Ser 540	ccg Pro	gaa Glu	1634
gcg Ala	ctc Leu 545	gac Asp	gag Glu	cag Gln	atc Ile	cgc Arg	cga Arg	ctg Leu	cgc Arg	gcc Ala	tac Tyr 555	ctg Leu	gac Asp	acc Thr	acc Thr	1682
ccg Pro 560	gac Asp	gtc Val	gac Asp	cgg Arg	gtg Val	gcc Ala 565	gtg Val	gca Ala	cag Gln	acg Thr 570	ctg Leu	gcc Ala	cgg Arg	cgc Arg	aca Thr	1730
cac His 575	ttc Phe	gcc Ala	cac His	cgc Arg 580	gcc Ala	gtg Val	ctg Leu	ctc Leu	ggt Gly	gac Asp 585	acc Thr	gtc Val	atc Ile	acc Thr 590	aca Thr	1778
ccc Pro	ccc Pro	gcg Ala	gac Asp 595	cgg Arg	ccc Pro	gac Asp	gaa Glu	ctc Leu	gtc Val 600	ttc Phe	gtc Val	tac Tyr	tcc Ser	ggc Gly 605	cag Gln	1826
ggc Gly	acc Thr	cag Gln 610	cat His	ccc Pro	gcg Ala	atg Met	ggc Gly 615	gag Glu	cag Gln	cta Leu	gcc Ala	gcc Ala	gcg Ala 620	ttc Phe	ccc Pro	1874

gtc ttc gcg cgg atc cat cag cag gtg tgg gac ctg ctc gat gtg ccc	1922
Val Phe Ala Arg Ile His Gln Gln Val Trp Asp Leu Leu Asp Val Pro	
625 630 635	
gat ctg gag gtg aac gag acc ggt tac gcc cag ccg gcc ctg ttc gca	1970
Asp Leu Glu Val Asn Glu Thr Gly Tyr Ala Gln Pro Ala Leu Phe Ala	
640 645 650	
atg cag gtg gct ctg ttc ggg ctg ctg gaa tcg tgg ggt gta cga ccg	2018
Met Gln Val Ala Leu Phe Gly Leu Leu Glu Ser Trp Gly Val Arg Pro	
655 660 665 670	
gac gcg gtg atc ggc cat tcg gtg ggt gag ctt gcg gct gcg tat gtg	2066
Asp Ala Val Ile Gly His Ser Val Gly Glu Leu Ala Ala Ala Tyr Val	
675 680 685	
tcc ggg gtg tgg tcg ttg gag gat gcc tgc act ttg gtg tcg gcg cgg	2114
Ser Gly Val Trp Ser Leu Glu Asp Ala Cys Thr Leu Val Ser Ala Arg	
690 695 700	
gct cgt ctg atg cag gct ctg ccc gcg ggt ggg gtg atg gtc gct gtc	2162
Ala Arg Leu Met Gln Ala Leu Pro Ala Gly Gly Val Met Val Ala Val	
705 710 715	
ccg gtc tcg gag gat gag gcc cgg gcc gtg ctg ggt gag ggt gtg gag	2210
Pro Val Ser Glu Asp Glu Ala Arg Ala Val Leu Gly Glu Gly Val Glu	
720 725 730	
atc gcc gcg gtc aac ggc ccg tcg tcg gtg gtt ctc tcc ggt gat gag	2258
Ile Ala Ala Val Asn Gly Pro Ser Ser Val Val Leu Ser Gly Asp Glu	
735 740 745 750	
gcc gcc gtg ctg cag gcc gcg gag ggg ctg ggg aag tgg acg cgg ctg	2306
Ala Ala Val Leu Gln Ala Ala Glu Gly Leu Gly Lys Trp Thr Arg Leu	
755 760 765	
gcg acc agc cac gcg ttc cat tcc gcc cgt atg gaa ccc atg ctg gag	2354
Ala Thr Ser His Ala Phe His Ser Ala Arg Met Glu Pro Met Leu Glu	
770 775 780	
gag ttc cgg gcg gtc gcc gaa ggc ctg acc tac cgg acg ccg cag gtc	2402
Glu Phe Arg Ala Val Ala Glu Gly Leu Thr Tyr Arg Thr Pro Gln Val	
785 790 795	
tcc atg gcc gtt ggt gat cag gtg acc acc gct gag tac tgg gtg cgg	2450
Ser Met Ala Val Gly Asp Gln Val Thr Thr Ala Glu Tyr Trp Val Arg	
800 805 810	
cag gtc cgg gac acg gtc cgg ttc ggc gag cag gtg gcc tcg tac gag	2498
Gln Val Arg Asp Thr Val Arg Phe Gly Glu Gln Val Ala Ser Tyr Glu	
815 820 825 830	
gac gcc gtg ttc gtc gag ctg ggt gcc gac cgg tca ctg gcc cgc ctg	2546
Asp Ala Val Phe Val Glu Leu Gly Ala Asp Arg Ser Leu Ala Arg Leu	
835 840 845	

gtc Val	gac Asp	ggt Gly	gtc Val	gcg Ala	atg Met	ctg Leu	cac His	ggc Gly	gac Asp	cac His	gaa Glu	atc Ile	cag Gln	gcc Ala	gcg Ala	2594
			850				855						860			
atc Ile	ggc Gly	gcc Ala	ctg Leu	gcc Ala	cac His	ctg Leu	tat Tyr	gtc Val	aac Asn	ggc Gly	gtc Val	acg Thr	gtc Val	gac Asp	tgg Trp	2642
			865				870						875			
ccc Pro	gcg Ala	ctc Leu	ctg Leu	ggc Gly	gat Asp	gct Ala	ccg Pro	gca Ala	aca Thr	cgg Arg	gtg Val	ctg Leu	gac Asp	ctt Leu	ccg Pro	2690
			880				885						890			
aca Thr	tac Tyr	gcc Ala	ttc Phe	cag Gln	cac His	cag Gln	cgc Arg	tac Tyr	tgg Trp	ctc Leu	gag Glu	tcg Ser	gca Ala	cgc Arg	ccg Pro	2738
			895				900						905	910		
gcc Ala	gca Ala	tcc Ser	gac Asp	gcg Ala	ggc Gly	cac His	ccc Pro	gtg Val	ctg Leu	ggc Gly	tcc Ser	ggt Gly	atc Ile	gcc Ala	ctc Leu	2786
			915				920						925			
gcc Ala	ggg Gly	tcg Ser	ccg Pro	ggc Gly	cgg Arg	gtg Val	ttc Phe	acg Thr	ggt Gly	tcc Ser	gtg Val	ccg Pro	acc Thr	ggt Gly	gcg Ala	2834
			930				935						940			
gac Asp	cgc Arg	gcg Ala	gtg Val	ttc Phe	gtc Val	gcc Ala	gag Glu	ctg Leu	gcg Ala	ctg Leu	gcc Ala	gcc Ala	gcg Ala	gac Asp	gcg Ala	2882
			945				950						955			
gtc Val	gac Asp	tgc Cys	gcc Ala	acg Thr	gtc Val	gag Glu	cgg Arg	ctc Leu	gac Asp	atc Ile	gcc Ala	tcc Ser	gtg Val	ccc Pro	ggc Gly	2930
			960				965						970			
cgg Arg	ccg Pro	ggc Gly	cat His	ggc Gly	cgg Arg	acg Thr	acc Thr	gta Val	cag Gln	acc Thr	tgg Trp	gtc Val	gac Asp	gag Glu	ccg Pro	2978
			975				980						985	990		
gcg Ala	gac Asp	gac Asp	ggc Gly	cgg Arg	cgc Arg	cgg Arg	ttc Phe	acc Thr	gtg Val	cac His	acc Thr	cgc Arg	acc Thr	ggc Gly	gac Asp	3026
			995				1000						1005			
gcc Ala	ccg Pro	tgg Trp	acg Thr	ctg Leu	cac His	gcc Ala	gag Glu	ggg Gly	gtg Val	ctg Leu	cgc Arg	ccc Pro	cat His	ggc Gly	acg Thr	3074
			1010				1015						1020			
gcc Ala	ctg Leu	ccc Pro	gat Asp	gcg Ala	gcc Ala	gac Asp	gcc Ala	gag Glu	tgg Trp	ccc Pro	cca Pro	ccg Pro	ggc Gly	gcg Ala	gtg Val	3122
			1025				1030						1035			
ccc Pro	gcg Ala	gac Asp	ggg Gly	ctg Leu	ccg Pro	ggt Gly	gtg Val	tgg Trp	cgc Arg	cgg Arg	ggg Gly	gac Asp	cag Gln	gtc Val	ttc Phe	3170
			1040				1045						1050			
gcc Ala	gag Glu	gcc Ala	gag Glu	gtg Val	gac Asp	gga Gly	ccg Pro	gac Asp	ggt Gly	ttc Phe	gtg Val	gtg Val	cac His	ccc Pro	gac Asp	3218
			1055				1060						1065	1070		



ctg ctc gac gcg gtc ttc tcc gcg gtc ggc gac gga agc cgc cag ccg	3266
Leu Leu Asp Ala Val Phe Ser Ala Val Gly Asp Gly Ser Arg Gln Pro	
1075 1080 1085	
gcc gga tgg cgc gac ctg acg gtg cac gcg tcg gac gcc acc gta ctg	3314
Ala Gly Trp Arg Asp Leu Thr Val His Ala Ser Asp Ala Thr Val Leu	
1090 1095 1100	
cgc gcc tgc ctc acc cgg cgc acc gac gga gcc atg gga ttc gcc gcc	3362
Arg Ala Cys Leu Thr Arg Arg Thr Asp Gly Ala Met Gly Phe Ala Ala	
1105 1110 1115	
ttc gac ggc gcc ggc ctg ccg gta ctc acc gcg gag gcg gtg acg ctg	3410
Phe Asp Gly Ala Gly Leu Pro Val Leu Thr Ala Glu Ala Val Thr Leu	
1120 1125 1130	
cgg gag gtg gcg tca ccg tcc ggc tcc gag gag tcg gac ggc ctg cac	3458
Arg Glu Val Ala Ser Pro Ser Gly Ser Glu Glu Ser Asp Gly Leu His	
1135 1140 1145 1150	
cgg ttg gag tgg ctc gcg gtc gcc gag gcg gtc tac gac ggt gac ctg	3506
Arg Leu Glu Trp Leu Ala Val Ala Glu Ala Val Tyr Asp Gly Asp Leu	
1155 1160 1165	
ccc gag gga cat gtc ctg atc acc gcc gcc cac ccc gac gac ccc gag	3554
Pro Glu Gly His Val Leu Ile Thr Ala Ala His Pro Asp Asp Pro Glu	
1170 1175 1180	
gac ata ccc acc cgc gcc cac acc cgc gcc acc cgc gtc ctg acc gcc	3602
Asp Ile Pro Thr Arg Ala His Thr Arg Ala Thr Arg Val Leu Thr Ala	
1185 1190 1195	
ctg caa cac cac ctc acc acc acc gac cac acc ctc atc gtc cac acc	3650
Leu Gln His His Leu Thr Thr Thr Asp His Thr Leu Ile Val His Thr	
1200 1205 1210	
acc acc gac ccc gcc ggc gcc acc gtc acc ggc ctc acc cgc acc gcc	3698
Thr Thr Asp Pro Ala Gly Ala Thr Val Thr Gly Leu Thr Arg Thr Ala	
1215 1220 1225 1230	
cag aac gaa cac ccc cac cgc atc cgc ctc atc gaa acc gac cac ccc	3746
Gln Asn Glu His Pro His Arg Ile Arg Leu Ile Glu Thr Asp His Pro	
1235 1240 1245	
cac acc ccc ctc ccc ctg gcc caa ctc gcc acc ctc gac cac ccc cac	3794
His Thr Pro Leu Pro Leu Ala Gln Leu Ala Thr Leu Asp His Pro His	
1250 1255 1260	
ctc cgc ctc acc cac cac acc ctc cac cac ccc cac ctc acc ccc ctc	3842
Leu Arg Leu Thr His His Thr Leu His His Pro His Leu Thr Pro Leu	
1265 1270 1275	
cac acc acc acc cca ccc acc acc acc ccc ctc aac ccc gaa cac gcc	3890
His Thr Thr Thr Pro Pro Thr Thr Pro Leu Asn Pro Glu His Ala	
1280 1285 1290	

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atc atc atc acc ggc ggc tcc ggc acc ctc gcc ggc atc ctc gcc cgc 3938  
 Ile Ile Ile Thr Gly Gly Ser Gly Thr Leu Ala Gly Ile Leu Ala Arg  
 1295 1300 1305 1310

cac ctg aac cac ccc cac acc tac ctc ctc tcc cgc acc cca ccc ccc 3986  
 His Leu Asn His Pro His Thr Tyr Leu Leu Ser Arg Thr Pro Pro Pro  
 1315 1320 1325

gac gcc acc ccc ggc acc cac ctc ccc tgc gac gtc ggc gac ccc cac 4034  
 Asp Ala Thr Pro Gly Thr His Leu Pro Cys Asp Val Gly Asp Pro His  
 1330 1335 1340

caa ctc gcc acc acc ctc acc cac atc ccc caa ccc ctc acc gcc atc 4082  
 Gln Leu Ala Thr Thr Leu Thr His Ile Pro Gln Pro Leu Thr Ala Ile  
 1345 1350 1355

ttc cac acc gcc gcc acc ctc gac gac ggc atc ctc cac gcc ctc acc 4130  
 Phe His Thr Ala Ala Thr Leu Asp Asp Gly Ile Leu His Ala Leu Thr  
 1360 1365 1370

ccc gac cgc ctc acc acc gtc ctc cac ccc aaa gcc aac gcc gcc tgg 4178  
 Pro Asp Arg Leu Thr Val Leu His Pro Lys Ala Asn Ala Ala Trp  
 1375 1380 1385 1390

cac ctg cac cac ctc acc caa aac caa ccc ctc acc cac ttc gtc ctc 4226  
 His Leu His His Leu Thr Gln Asn Gln Pro Leu Thr His Phe Val Leu  
 1395 1400 1405

tac tcc agc gcc gcc gcc gtc ctc ggc agc ccc gga caa gga aac tac 4274  
 Tyr Ser Ser Ala Ala Ala Val Leu Gly Ser Pro Gly Gln Gly Asn Tyr  
 1410 1415 1420

gcc gcc gcc aac gcc ttc ctc gac gcc ctc gcc acc cac cgc cac acc 4322  
 Ala Ala Ala Asn Ala Phe Leu Asp Ala Leu Ala Thr His Arg His Thr  
 1425 1430 1435

ctc ggc caa ccc gcc acc tcc atc gcc tgg ggc atg tgg cac acc acc 4370  
 Leu Gly Gln Pro Ala Thr Ser Ile Ala Trp Gly Met Trp His Thr Thr  
 1440 1445 1450

agc acc ctc acc gga caa ctc gac gac gcc gac cgg gac cgc atc cgc 4418  
 Ser Thr Leu Thr Gly Gln Leu Asp Asp Ala Asp Arg Asp Arg Ile Arg  
 1455 1460 1465 1470

cgc ggc ggt ttc ctc ccg atc acg gac gac gag ggc atggggatgc at 4466  
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 1475 1480

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&lt;211&gt; 1482

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&lt;213&gt; Artificial Sequence

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 <223> Description of Artificial Sequence: Synthetic PKS  
 synthase fragment

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Gln Leu Ala Glu Ala Leu Leu Thr Leu Val Arg Glu Ser Thr Ala Ala  
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 Val Leu Gly His Val Gly Gly Glu Asp Ile Pro Ala Thr Ala Ala Phe  
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 Lys Asp Leu Gly Ile Asp Ser Leu Thr Ala Val Gln Leu Arg Asn Ala  
 35 40 45  
 Leu Thr Glu Ala Thr Gly Val Arg Leu Asn Ala Thr Ala Val Phe Asp  
 50 55 60  
 Phe Pro Thr Pro His Val Leu Ala Gly Lys Leu Gly Asp Glu Leu Thr  
 65 70 75 80  
 Gly Thr Arg Ala Pro Val Val Pro Arg Thr Ala Ala Thr Ala Gly Ala  
 85 90 95  
 His Asp Glu Pro Leu Ala Ile Val Gly Met Ala Cys Arg Leu Pro Gly  
 100 105 110  
 Gly Val Ala Ser Pro Glu Glu Leu Trp His Leu Val Ala Ser Gly Thr  
 115 120 125  
 Asp Ala Ile Thr Glu Phe Pro Thr Asp Arg Gly Trp Asp Val Asp Ala  
 130 135 140  
 Ile Tyr Asp Pro Asp Pro Asp Ala Ile Gly Lys Thr Phe Val Arg His  
 145 150 155 160  
 Gly Gly Phe Leu Thr Gly Ala Thr Gly Phe Asp Ala Ala Phe Phe Gly  
 165 170 175  
 Ile Ser Pro Arg Glu Ala Leu Ala Met Asp Pro Gln Gln Arg Val Leu  
 180 185 190  
 Leu Glu Thr Ser Trp Glu Ala Phe Glu Ser Ala Gly Ile Thr Pro Asp  
 195 200 205  
 Ser Thr Arg Gly Ser Asp Thr Gly Val Phe Val Gly Ala Phe Ser Tyr  
 210 215 220  
 Gly Tyr Gly Thr Gly Ala Asp Thr Asp Gly Phe Gly Ala Thr Gly Ser  
 225 230 235 240  
 Gln Thr Ser Val Leu Ser Gly Arg Leu Ser Tyr Phe Tyr Gly Leu Glu  
 245 250 255  
 Gly Pro Ala Val Thr Val Asp Thr Ala Cys Ser Ser Ser Leu Val Ala  
 260 265 270  
 Leu His Gln Ala Gly Gln Ser Leu Arg Ser Gly Glu Cys Ser Leu Ala  
 275 280 285  
 Leu Val Gly Gly Val Thr Val Met Ala Ser Pro Gly Gly Phe Val Glu  
 290 295 300

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 102280-91E04550

Phe Ser Arg Gln Arg Gly Leu Ala Pro Asp Gly Arg Ala Lys Ala Phe  
 305 310 315 320  
 Gly Ala Gly Ala Asp Gly Thr Ser Phe Ala Glu Gly Ala Gly Val Leu  
 325 330 335  
 Ile Val Glu Arg Leu Ser Asp Ala Glu Arg Asn Gly His Thr Val Leu  
 340 345 350  
 Ala Val Val Arg Gly Ser Ala Val Asn Gln Asp Gly Ala Ser Asn Gly  
 355 360 365  
 Leu Ser Ala Pro Asn Gly Pro Ser Gln Glu Arg Val Ile Arg Gln Ala  
 370 375 380  
 Leu Ala Asn Ala Gly Leu Thr Pro Ala Asp Val Asp Ala Val Glu Ala  
 385 390 395 400  
 His Gly Thr Gly Thr Arg Leu Gly Asp Pro Ile Glu Ala Gln Ala Val  
 405 410 415  
 Leu Ala Thr Tyr Gly Gln Glu Arg Ala Thr Pro Leu Leu Leu Gly Ser  
 420 425 430  
 Leu Lys Ser Asn Ile Gly His Ala Gln Ala Ala Ser Gly Val Ala Gly  
 435 440 445  
 Ile Ile Lys Met Val Gln Ala Leu Arg His Gly Glu Leu Pro Pro Thr  
 450 455 460  
 Leu His Ala Asp Glu Pro Ser Pro His Val Asp Trp Thr Ala Gly Ala  
 465 470 475 480  
 Val Glu Leu Leu Thr Ser Ala Arg Pro Trp Pro Glu Thr Asp Arg Pro  
 485 490 495  
 Arg Arg Ala Ala Val Ser Ser Phe Gly Val Ser Gly Thr Asn Ala His  
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<223> Description of Artificial Sequence: DNA encoding synthetic  
PKS synthase fragment

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Ala Phe Lys Asp Leu Gly Ile Asp Ser Leu Thr Ala Val Gln Leu Arg
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Asn Ala Leu Thr Glu Ala Thr Gly Val Arg Leu Asn Ala Thr Ala Val
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Phe Asp Phe Pro Thr Pro His Val Leu Ala Gly Lys Leu Gly Asp Glu
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Leu Thr Gly Thr Arg Ala Pro Val Val Pro Arg Thr Ala Ala Thr Ala
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FOUO 2280 9 FEB 66



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 acc gtc ctc cac ccc aaa gcc aac gcc gcc tgg cac ctg cac cac ctc 4274  
 Thr Val Leu His Pro Lys Ala Asn Ala Ala Trp His Leu His His Leu  
 1410 1415 1420  
 acc caa aac caa ccc ctc acc cac ttc gtc ctc tac tcc agc gcc gcc 4322  
 Thr Gln Asn Gln Pro Leu Thr His Phe Val Leu Tyr Ser Ser Ala Ala  
 1425 1430 1435  
 gcc gtc ctc ggc agc ccc gga caa gga aac tac gcc gcc gcc aac gcc 4370  
 Ala Val Leu Gly Ser Pro Gly Gln Gly Asn Tyr Ala Ala Ala Asn Ala  
 1440 1445 1450  
 ttc ctc gac gcc ctc gcc acc cac cgc cac acc ctc ggc caa ccc gcc 4418  
 Phe Leu Asp Ala Leu Ala Thr His Arg His Thr Leu Gly Gln Pro Ala  
 1455 1460 1465 1470  
 acc tcc atc gcc tgg ggc atg tgg cac acc acc agc acc ctc acc gga 4466  
 Thr Ser Ile Ala Trp Gly Met Trp His Thr Thr Ser Thr Leu Thr Gly  
 1475 1480 1485  
 caa ctc gac gac gcc gac cgg gac cgc atc cgc cgc ggc ggt ttc ctc 4514  
 Gln Leu Asp Asp Ala Asp Arg Asp Arg Ile Arg Arg Gly Gly Phe Leu  
 1490 1495 1500  
 ccg atc acg gac gac gag ggc atggggatgc at 4547  
 Pro Ile Thr Asp Asp Glu Gly  
 1505

&lt;210&gt; 23

&lt;211&gt; 1509

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

09040315 082704  
 102280 91204650

<223> Description of Artificial Sequence: Synthetic PKS synthase fragment

Gln 1	Leu	Ala	Glu	Ala	Leu	Leu	Thr	Leu	Val	Arg	Glu	Ser	Thr	Ala	Ala	
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Val	Leu	Gly	His	Val	Gly	Gly	Glu	Asp	Ile	Pro	Ala	Thr	Ala	Ala	Phe	
20					25					30						
Lys	Asp	Leu	Gly	Ile	Asp	Ser	Leu	Thr	Ala	Val	Gln	Leu	Arg	Asn	Ala	
35					40					45						
Leu	Thr	Glu	Ala	Thr	Gly	Val	Arg	Leu	Asn	Ala	Thr	Ala	Val	Phe	Asp	
50					55					60						
Phe	Pro	Thr	Pro	His	Val	Leu	Ala	Gly	Lys	Leu	Gly	Asp	Glu	Leu	Thr	
65					70					75					80	
Gly	Thr	Arg	Ala	Pro	Val	Val	Pro	Arg	Thr	Ala	Ala	Thr	Ala	Gly	Ala	
85					90					95						
His	Asp	Glu	Pro	Leu	Ala	Ile	Val	Gly	Met	Ala	Cys	Arg	Leu	Pro	Gly	
100					105					110						
Gly	Val	Ala	Ser	Pro	Glu	Glu	Leu	Trp	His	Leu	Val	Ala	Ser	Gly	Thr	
115					120					125						
Asp	Ala	Ile	Thr	Glu	Phe	Pro	Thr	Asp	Arg	Gly	Trp	Asp	Val	Asp	Ala	
130					135					140						
Ile	Tyr	Asp	Pro	Asp	Pro	Asp	Ala	Ile	Gly	Lys	Thr	Phe	Val	Arg	His	
145					150					155					160	
Gly	Gly	Phe	Leu	Thr	Gly	Ala	Thr	Gly	Phe	Asp	Ala	Ala	Phe	Phe	Gly	
165					170					175						
Ile	Ser	Pro	Arg	Glu	Ala	Leu	Ala	Met	Asp	Pro	Gln	Gln	Arg	Val	Leu	
180					185					190						
Leu	Glu	Thr	Ser	Trp	Glu	Ala	Phe	Glu	Ser	Ala	Gly	Ile	Thr	Pro	Asp	
195					200					205						
Ser	Thr	Arg	Gly	Ser	Asp	Thr	Gly	Val	Phe	Val	Gly	Ala	Phe	Ser	Tyr	
210					215					220						
Gly	Tyr	Gly	Thr	Gly	Ala	Asp	Thr	Asp	Gly	Phe	Gly	Ala	Thr	Gly	Ser	
225					230					235					240	
Gln	Thr	Ser	Val	Leu	Ser	Gly	Arg	Leu	Ser	Tyr	Phe	Tyr	Gly	Leu	Glu	
245					250					255						
Gly	Pro	Ala	Val	Thr	Val	Asp	Thr	Ala	Cys	Ser	Ser	Ser	Leu	Val	Ala	
260					265					270						

Leu	His	Gln	Ala	Gly	Gln	Ser	Leu	Arg	Ser	Gly	Glu	Cys	Ser	Leu	Ala
		275					280					285			
Leu	Val	Gly	Gly	Val	Thr	Val	Met	Ala	Ser	Pro	Gly	Gly	Phe	Val	Glu
		290				295					300				
Phe	Ser	Arg	Gln	Arg	Gly	Leu	Ala	Pro	Asp	Gly	Arg	Ala	Lys	Ala	Phe
305					310					315					320
Gly	Ala	Gly	Ala	Asp	Gly	Thr	Ser	Phe	Ala	Glu	Gly	Ala	Gly	Val	Leu
				325					330					335	
Ile	Val	Glu	Arg	Leu	Ser	Asp	Ala	Glu	Arg	Asn	Gly	His	Thr	Val	Leu
			340					345					350		
Ala	Val	Val	Arg	Gly	Ser	Ala	Val	Asn	Gln	Asp	Gly	Ala	Ser	Asn	Gly
		355					360					365			
Leu	Ser	Ala	Pro	Asn	Gly	Pro	Ser	Gln	Glu	Arg	Val	Ile	Arg	Gln	Ala
		370				375					380				
Leu	Ala	Asn	Ala	Gly	Leu	Thr	Pro	Ala	Asp	Val	Asp	Ala	Val	Glu	Ala
385					390					395					400
His	Gly	Thr	Gly	Thr	Arg	Leu	Gly	Asp	Pro	Ile	Glu	Ala	Gln	Ala	Val
				405					410					415	
Leu	Ala	Thr	Tyr	Gly	Gln	Glu	Arg	Ala	Thr	Pro	Leu	Leu	Leu	Gly	Ser
			420					425					430		
Leu	Lys	Ser	Asn	Ile	Gly	His	Ala	Gln	Ala	Ala	Ser	Gly	Val	Ala	Gly
		435					440					445			
Ile	Ile	Lys	Met	Val	Gln	Ala	Leu	Arg	His	Gly	Glu	Leu	Pro	Pro	Thr
	450					455					460				
Leu	His	Ala	Asp	Glu	Pro	Ser	Pro	His	Val	Asp	Trp	Thr	Ala	Gly	Ala
465					470					475					480
Val	Glu	Leu	Leu	Thr	Ser	Ala	Arg	Pro	Trp	Pro	Glu	Thr	Asp	Arg	Pro
				485					490					495	
Arg	Arg	Ala	Ala	Val	Ser	Ser	Phe	Gly	Val	Ser	Gly	Thr	Asn	Ala	His
			500					505					510		
Val	Ile	Leu	Glu	Ala	Gly	Pro	Val	Thr	Glu	Thr	Pro	Ala	Ala	Ser	Pro
		515					520					525			
Ser	Gly	Asp	Leu	Pro	Leu	Leu	Val	Ser	Ala	Arg	Ser	Pro	Glu	Ala	Leu
		530				535					540				
Asp	Glu	Gln	Ile	Arg	Arg	Leu	Arg	Ala	Tyr	Leu	Asp	Thr	Thr	Pro	Asp
545					550					555					560
Val	Asp	Arg	Val	Ala	Val	Ala	Gln	Thr	Leu	Ala	Arg	Arg	Thr	His	Phe
				565					570					575	



Ala His Arg Ala Val Leu Leu Gly Asp Thr Val Ile Thr Thr Pro Pro  
580 585 590

Ala Asp Arg Pro Asp Glu Leu Val Phe Val Tyr Ser Gly Gln Gly Thr  
595 600 605

Gln His Pro Ala Met Gly Glu Gln Leu Ala Asp Ser Ser Val Val Phe  
610 615 620

Ala Glu Arg Met Ala Glu Cys Ala Ala Ala Leu Arg Glu Phe Val Asp  
625 630 635 640

Trp Asp Leu Phe Thr Val Leu Asp Asp Pro Ala Val Val Asp Arg Val  
645 650 655

Asp Val Val Gln Pro Ala Ser Trp Ala Met Met Val Ser Leu Ala Ala  
660 665 670

Val Trp Gln Ala Ala Gly Val Arg Pro Asp Ala Val Ile Gly His Ser  
675 680 685

Gln Gly Glu Ile Ala Ala Ala Cys Val Ala Gly Ala Val Ser Leu Arg  
690 695 700

Asp Ala Ala Arg Ile Val Thr Leu Arg Ser Gln Ala Ile Ala Arg Gly  
705 710 715 720

Leu Ala Gly Arg Gly Ala Met Ala Ser Val Ala Leu Pro Ala Gln Asp  
725 730 735

Val Glu Leu Val Asp Gly Ala Trp Ile Ala Ala His Asn Gly Pro Ala  
740 745 750

Ser Thr Val Ile Ala Gly Thr Pro Glu Ala Val Asp His Val Leu Thr  
755 760 765

Ala His Glu Ala Gln Gly Val Arg Val Arg Arg Ile Thr Val Asp Tyr  
770 775 780

Ala Ser His Thr Pro His Val Glu Leu Ile Arg Asp Glu Leu Leu Asp  
785 790 795 800

Ile Thr Ser Asp Ser Ser Ser Gln Thr Pro Leu Val Pro Trp Leu Ser  
805 810 815

Thr Val Asp Gly Thr Trp Val Asp Ser Pro Leu Asp Gly Glu Tyr Trp  
820 825 830

Tyr Arg Asn Leu Arg Glu Pro Val Gly Phe His Pro Ala Val Ser Gln  
835 840 845

Leu Gln Ala Gln Gly Asp Thr Val Phe Val Glu Val Ser Ala Ser Pro  
850 855 860

Val Leu Leu Gln Ala Met Asp Asp Asp Val Val Thr Val Ala Thr Leu  
865 870 875 880

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T02200-91E04550

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 Ala Tyr Val His Gly Val Thr Val Asp Trp Pro Ala Ile Leu Gly Thr  
 900 905 910  
 Thr Thr Thr Arg Val Leu Asp Leu Pro Thr Tyr Ala Phe Gln His Gln  
 915 920 925  
 Arg Tyr Trp Leu Glu Ser Ala Arg Pro Ala Ala Ser Asp Ala Gly His  
 930 935 940  
 Pro Val Leu Gly Ser Gly Ile Ala Leu Ala Gly Ser Pro Gly Arg Val  
 945 950 955 960  
 Phe Thr Gly Ser Val Pro Thr Gly Ala Asp Arg Ala Val Phe Val Ala  
 965 970 975  
 Glu Leu Ala Leu Ala Ala Ala Asp Ala Val Asp Cys Ala Thr Val Glu  
 980 985 990  
 Arg Leu Asp Ile Ala Ser Val Pro Gly Arg Pro Gly His Gly Arg Thr  
 995 1000 1005  
 Thr Val Gln Thr Trp Val Asp Glu Pro Ala Asp Asp Gly Arg Arg Arg  
 1010 1015 1020  
 Phe Thr Val His Thr Arg Thr Gly Asp Ala Pro Trp Thr Leu His Ala  
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 Glu Gly Val Leu Arg Pro His Gly Thr Ala Leu Pro Asp Ala Ala Asp  
 1045 1050 1055  
 Ala Glu Trp Pro Pro Pro Gly Ala Val Pro Ala Asp Gly Leu Pro Gly  
 1060 1065 1070  
 Val Trp Arg Arg Gly Asp Gln Val Phe Ala Glu Ala Glu Val Asp Gly  
 1075 1080 1085  
 Pro Asp Gly Phe Val Val His Pro Asp Leu Leu Asp Ala Val Phe Ser  
 1090 1095 1100  
 Ala Val Gly Asp Gly Ser Arg Gln Pro Ala Gly Trp Arg Asp Leu Thr  
 1105 1110 1115 1120  
 Val His Ala Ser Asp Ala Thr Val Leu Arg Ala Cys Leu Thr Arg Arg  
 1125 1130 1135  
 Thr Asp Gly Ala Met Gly Phe Ala Ala Phe Asp Gly Ala Gly Leu Pro  
 1140 1145 1150  
 Val Leu Thr Ala Glu Ala Val Thr Leu Arg Glu Val Ala Ser Pro Ser  
 1155 1160 1165  
 Gly Ser Glu Glu Ser Asp Gly Leu His Arg Leu Glu Trp Leu Ala Val  
 1170 1175 1180

0544036 082704  
 102280 91604650

Ala Glu Ala Val Tyr Asp Gly Asp Leu Pro Glu Gly His Val Leu Ile  
185 1190 1195 1200

Thr Ala Ala His Pro Asp Asp Pro Glu Asp Ile Pro Thr Arg Ala His  
1205 1210 1215

Thr Arg Ala Thr Arg Val Leu Thr Ala Leu Gln His His Leu Thr Thr  
1220 1225 1230

Thr Asp His Thr Leu Ile Val His Thr Thr Thr Asp Pro Ala Gly Ala  
1235 1240 1245

Thr Val Thr Gly Leu Thr Arg Thr Ala Gln Asn Glu His Pro His Arg  
1250 1255 1260

Ile Arg Leu Ile Glu Thr Asp His Pro His Thr Pro Leu Pro Leu Ala  
265 1270 1275 1280

Gln Leu Ala Thr Leu Asp His Pro His Leu Arg Leu Thr His His Thr  
1285 1290 1295

Leu His His Pro His Leu Thr Pro Leu His Thr Thr Thr Pro Pro Thr  
1300 1305 1310

Thr Thr Pro Leu Asn Pro Glu His Ala Ile Ile Ile Thr Gly Gly Ser  
1315 1320 1325

Gly Thr Leu Ala Gly Ile Leu Ala Arg His Leu Asn His Pro His Thr  
1330 1335 1340

Tyr Leu Leu Ser Arg Thr Pro Pro Pro Asp Ala Thr Pro Gly Thr His  
345 1350 1355 1360

Leu Pro Cys Asp Val Gly Asp Pro His Gln Leu Ala Thr Thr Leu Thr  
1365 1370 1375

His Ile Pro Gln Pro Leu Thr Ala Ile Phe His Thr Ala Ala Thr Leu  
1380 1385 1390

Asp Asp Gly Ile Leu His Ala Leu Thr Pro Asp Arg Leu Thr Thr Val  
1395 1400 1405

Leu His Pro Lys Ala Asn Ala Ala Trp His Leu His His Leu Thr Gln  
1410 1415 1420

Asn Gln Pro Leu Thr His Phe Val Leu Tyr Ser Ser Ala Ala Ala Val  
425 1430 1435 1440

Leu Gly Ser Pro Gly Gln Gly Asn Tyr Ala Ala Ala Asn Ala Phe Leu  
1445 1450 1455

Asp Ala Leu Ala Thr His Arg His Thr Leu Gly Gln Pro Ala Thr Ser  
1460 1465 1470

Ile Ala Trp Gly Met Trp His Thr Thr Ser Thr Leu Thr Gly Gln Leu  
1475 1480 1485

10/22/2020 9:50:46 AM

Asp Asp Ala Asp Arg Asp Arg Ile Arg Arg Gly Gly Phe Leu Pro Ile  
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Thr Asp Asp Glu Gly  
 505

<210> 24

<211> 4725

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding synthetic  
 PKS synthase fragment

<220>

<221> CDS

<222> (3)..(4724)

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Val Ala Ala Ala Leu Asp Asp Ala Pro Asp Val Pro Leu Leu Arg Gly	
20 25 30	
ctg cgg cgt acg acc gtc cgg cgt gcc gcc gtc cgg gaa cgc tct ctc	143
Leu Arg Arg Thr Thr Val Arg Arg Ala Ala Val Arg Glu Arg Ser Leu	
35 40 45	
gcc gac cgc tcg ccg tgc tgc ccg acg acg agc gcg ccg acg cct ccc	191
Ala Asp Arg Ser Pro Cys Cys Pro Thr Thr Ser Ala Pro Thr Pro Pro	
50 55 60	
tcg cgt tcg tcc tgg aac agc acc gcc acc gtg ctc ggc cac ctg ggc	239
Ser Arg Ser Ser Trp Asn Ser Thr Ala Thr Val Leu Gly His Leu Gly	
65 70 75	
gcc gaa gac atc ccg gcg acg acg acg ttc aag gaa ctc ggc atc gac	287
Ala Glu Asp Ile Pro Ala Thr Thr Phe Lys Glu Leu Gly Ile Asp	
80 85 90 95	
tcg ctc acc gcg gtc cag ctg cgc aac gcg ctg acc acg gcg acc ggc	335
Ser Leu Thr Ala Val Gln Leu Arg Asn Ala Leu Thr Thr Ala Thr Gly	
100 105 110	
gta cgc ctc aac gcc aca gcg gtc ttc gac ttt ccg acg ccg cgc gcg	383
Val Arg Leu Asn Ala Thr Ala Val Phe Asp Phe Pro Thr Pro Arg Ala	
115 120 125	
ctc gcc gcg aga ctc ggc gac gag ctg gcc ggt acc cgc gcg ccc gtc	431
Leu Ala Ala Arg Leu Gly Asp Glu Leu Ala Gly Thr Arg Ala Pro Val	
130 135 140	

"GTECH660" 02220

gcg Ala	gcc Ala	egg Arg	acc Thr	gcg Ala	gcc Ala	acc Thr	gcg Ala	gcc Ala	gcg Ala	cac His	gac Asp	gaa Glu	ccg Pro	ctg Leu	gcg Ala	479
145150155																
atc Ile	gtg Val	ggc Gly	atg Met	gcc Ala	tgc Cys	cgt Arg	ctg Leu	ccg Pro	ggc Gly	ggg Gly	gtc Val	gcg Ala	tcg Ser	cca Pro	cag Gln	527
160165170175																
gag Glu	ctg Leu	tgg Trp	cgt Arg	ctc Leu	gtc Val	gcg Ala	tcc Ser	ggc Gly	acc Thr	gac Asp	gcc Ala	atc Ile	acg Thr	gag Glu	ttc Phe	575
180185190																
ccc Pro	gcg Ala	gac Asp	cgc Arg	ggc Gly	tgg Trp	gac Asp	gtg Val	gac Asp	gcg Ala	ctc Leu	tac Tyr	gac Asp	ccg Pro	gac Asp	ccc Pro	623
195200205																
gac Asp	gcg Ala	atc Ile	ggc Gly	aag Lys	acc Thr	ttc Phe	gtc Val	cgg Arg	cac His	ggc Gly	ggc Gly	ttc Phe	ctc Leu	gac Asp	ggt Gly	671
210215220																
gcg Ala	acc Thr	ggc Gly	ttc Phe	gac Asp	gcg Ala	gcg Ala	ttc Phe	ttc Phe	ggg Gly	atc Ile	agc Ser	ccg Pro	cgc Arg	gag Glu	gcc Ala	719
225230235																
ctg Leu	gcc Ala	atg Met	gac Asp	ccg Pro	cag Gln	caa Gln	cgg Arg	gtg Val	ctc Leu	ctg Leu	gag Glu	acg Thr	tcc Ser	tgg Trp	gag Glu	767
240245250255																
gcg Ala	ttc Phe	gaa Glu	agc Ser	gcg Ala	ggc Gly	atc Ile	acc Thr	ccg Pro	gac Asp	gcg Ala	gcg Ala	cgg Arg	ggc Gly	agc Ser	gac Asp	815
260265270																
acc Thr	ggc Gly	gtg Val	ttc Phe	atc Ile	ggc Gly	gcg Ala	ttc Phe	tcc Ser	tac Tyr	ggg Gly	tac Tyr	ggc Gly	acg Thr	ggt Gly	gcg Ala	863
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290295300																
ggc Gly	cgc Arg	ctc Leu	tcg Ser	tac Tyr	ttc Phe	tac Tyr	ggt Gly	ctg Leu	gag Glu	ggc Gly	cct Pro	tcg Ser	gtc Val	acg Thr	gtc Val	959
305310315																
gac Asp	acc Thr	gcc Ala	tgc Cys	tcg Ser	tcg Ser	tca Ser	ctg Leu	gtc Val	gcc Ala	ctg Leu	cac His	cag Gln	gca Ala	ggg Gly	cag Gln	1007
320325330335																
tcc Ser	ctg Leu	cgc Arg	tcg Ser	ggc Gly	gaa Glu	tgc Cys	tcg Ser	ctc Leu	gcc Ala	ctg Leu	gtc Val	ggc Gly	ggt Gly	gtc Val	acg Thr	1055
340345350355																
gtg Val	atg Met	gcg Ala	tcg Ser	ccc Pro	ggc Gly	gga Gly	ttc Phe	gtc Val	gag Glu	ttc Phe	tcc Ser	cgg Arg	cag Gln	cgc Arg	ggg Gly	1103
360365																

ctc gcg ccg gac ggg cgg gcg aag gcg ttc ggc gcg ggc gcg gac ggt 1151  
 Leu Ala Pro Asp Gly Arg Ala Lys Ala Phe Gly Ala Gly Ala Asp Gly  
 370 375 380

acg agc ttc gcc gag ggc gcc ggt gcc ctg gtg gtc gag cgg ctc tcc 1199  
 Thr Ser Phe Ala Glu Gly Ala Gly Ala Leu Val Val Glu Arg Leu Ser  
 385 390 395

gac gcg gag cgc cac ggc cac acc gtc ctc gcc ctc gta cgc ggc tcc 1247  
 Asp Ala Glu Arg His Gly His Thr Val Leu Ala Leu Val Arg Gly Ser  
 400 405 410 415

gcg gct aac tcc gac ggc gcg tcg aac ggt ctg tcg gcg ccg aac ggc 1295  
 Ala Ala Asn Ser Asp Gly Ala Ser Asn Gly Leu Ser Ala Pro Asn Gly  
 420 425 430

ccc tcc cag gaa cgc gtc atc cac cag gcc ctc gcg aac gcg aaa ctc 1343  
 Pro Ser Gln Glu Arg Val Ile His Gln Ala Leu Ala Asn Ala Lys Leu  
 435 440 445

acc ccc gcc gat gtc gac gcg gtc gag gcg cac ggc acc ggc acc cgc 1391  
 Thr Pro Ala Asp Val Asp Ala Val Glu Ala His Gly Thr Gly Thr Arg  
 450 455 460

ctc ggc gac ccc atc gag gcg cag gcg ctg ctc gcg acg tac gga cag 1439  
 Leu Gly Asp Pro Ile Glu Ala Gln Ala Leu Leu Ala Thr Tyr Gly Gln  
 465 470 475

gac cgg gcg acg ccc ctg ctg ctc ggc tcg ctg aag tcg aac atc ggg 1487  
 Asp Arg Ala Thr Pro Leu Leu Leu Gly Ser Leu Lys Ser Asn Ile Gly  
 480 485 490 495

cac gcc cag gcc gcg tca ggg gtc gcc ggg atc atc aag atg gtg cag 1535  
 His Ala Gln Ala Ala Ser Gly Val Ala Gly Ile Ile Lys Met Val Gln  
 500 505 510

gcc atc ccg cac ggg gaa ctg ccg ccg aca ctg cac gcg gac gag ccg 1583  
 Ala Ile Arg His Gly Glu Leu Pro Pro Thr Leu His Ala Asp Glu Pro  
 515 520 525

tcg ccg cac gtc gac tgg acg gcc ggt gcc gtc gag ctc ctg acg tcg 1631  
 Ser Pro His Val Asp Trp Thr Ala Gly Ala Val Glu Leu Leu Thr Ser  
 530 535 540

gcc cgg ccg tgg ccg ggg acc ggt cgc ccg cgc cgc gct gcc gtc tcg 1679  
 Ala Arg Pro Trp Pro Gly Thr Gly Arg Pro Arg Arg Ala Ala Val Ser  
 545 550 555

tcg ttc ggc gtg agc ggc acg aac gcc cac atc atc ctt gag gca gga 1727  
 Ser Phe Gly Val Ser Gly Thr Asn Ala His Ile Ile Leu Glu Ala Gly  
 560 565 570 575

ccg gtc aaa acg gga ccg gtc gag gca gga gcg atc gag gca gga ccg 1775  
 Pro Val Lys Thr Gly Pro Val Glu Ala Gly Ala Ile Glu Ala Gly Pro  
 580 585 590

gtc Val	gaa Glu	gta Val	gga Gly 595	ccg Pro	gtc Val	gag Glu	gct Ala	gga Gly 600	ccg Pro	ctc Leu	ccc Pro	gcg Ala	gcg Ala	ccg Pro	ccg Pro	1823
tca Ser	gca Ala	ccg Pro 610	ggc Gly	gaa Glu	gac Asp	ctt Leu	ccg Pro 615	ctg Leu	ctc Leu	gtg Val	tcg Ser	gcg Ala	cgt Arg	tcc Ser	ccg Pro	1871
gag Glu	gca Ala	ctc Leu	gac Asp	gag Glu	cag Gln	atc Ile 630	ggg Gly	cgc Arg	ctg Leu	cgc Arg	gcc Ala 635	tat Tyr	ctc Leu	gac Asp	acc Thr	1919
ggc Gly 640	ccg Pro	ggc Gly	gtc Val	gac Asp	cgg Arg 645	gcg Ala	gcc Ala	gtg Val	gcg Ala	cag Gln 650	aca Thr	ctg Leu	gcc Ala	cgg Arg	cgt Arg 655	1967
acg Thr	cac His	ttc Phe	acc Thr	cac His 660	cgg Arg	gcc Ala	gta Val	ctg Leu	ctc Leu	ggg Gly 665	gac Asp	acc Thr	gtc Val	atc Ile 670	ggc Gly	2015
gct Ala	ccc Pro	ccc Pro	gcg Ala 675	gac Asp	cag Gln	gcc Ala	gac Asp	gaa Glu 680	ctc Leu	gtc Val	ttc Phe	gtc Val	tac Tyr 685	tcc Ser	ggt Gly	2063
cag Gln	ggc Gly	acc Thr 690	cag Gln	cat His	ccc Pro	gcg Ala	atg Met 695	ggc Gly	gag Glu	caa Gln	ctc Leu	gcg Ala 700	gcc Ala	gcg Ala	ttc Phe	2111
ccc Pro	gtg Val 705	ttc Phe	gcc Ala	gat Asp	gcc Ala	tgg Trp 710	cac His	gac Asp	gcg Ala	ctc Leu	cga Arg 715	cgg Arg	ctc Leu	gac Asp	gac Asp	2159
ccc Pro 720	gac Asp	ccg Pro	cac His	gac Asp	ccc Pro 725	aca Thr	cgg Arg	agc Ser	cag Gln	cac His 730	acg Thr	ctc Leu	ttc Phe	gcc Ala 735	cac His	2207
cag Gln	gcg Ala	gcg Ala	ttc Phe	acc Thr 740	gcc Ala	ctc Leu	ctg Leu	agg Arg	tcc Ser	tgg Trp 745	gac Asp	atc Ile	acg Thr	ccg Pro 750	cac His	2255
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ggg Gly	atc Ile	ctg Leu 770	tcg Ser	ctc Leu	gac Asp	gac Asp	gcc Ala 775	tgc Cys	acc Thr	ctg Leu	atc Ile	acc Thr 780	acg Thr	cgt Arg	gcc Ala	2351
cgc Arg	ctc Leu	atg Met 785	cac His	acg Thr	ctt Leu	ccg Pro 790	ccg Pro	ccc Pro	ggc Gly	gcc Ala	atg Met 795	gtc Val	acc Thr	gtg Val	ctg Leu	2399
acc Thr 800	agc Ser	gag Glu	gag Glu	gag Glu	gcc Ala 805	cgt Arg	cag Gln	gcg Ala	ctg Leu	cgg Arg 810	ccg Pro	ggc Gly	gtg Val	gag Glu	atc Ile 815	2447

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 Ala Ala Val Phe Gly Pro His Ser Val Val Leu Ser Gly Asp Glu Asp  
                   820                                  825                                  830

gcc gtg ctc gac gtc gca cag cgg ctc ggc atc cac cac cgt ctg ccc 2543  
 Ala Val Leu Asp Val Ala Gln Arg Leu Gly Ile His His Arg Leu Pro  
                   835                                  840                                  845

gcg ccg cac gcg ggc cac tcc gcg cac atg gaa ccc gtg gcc gcc gag 2591  
 Ala Pro His Ala Gly His Ser Ala His Met Glu Pro Val Ala Ala Glu  
                   850                                  855                                  860

ctg ctc gcc acc act cgc gag ctc cgt tac gac cgg ccc cac acc gcc 2639  
 Leu Leu Ala Thr Thr Arg Glu Leu Arg Tyr Asp Arg Pro His Thr Ala  
                   865                                  870                                  875

atc ccg aac gac ccc acc acc gcc gag tac tgg gcc gag cag gtc cgc 2687  
 Ile Pro Asn Asp Pro Thr Thr Ala Glu Tyr Trp Ala Glu Gln Val Arg  
                   880                                  885                                  890                                  895

aac ccc gtg ctg ttc cac gcc cac acc cag cgg tac ccc gac gcc gtg 2735  
 Asn Pro Val Leu Phe His Ala His Thr Gln Arg Tyr Pro Asp Ala Val  
                   900                                  905                                  910

ttc gtc gag atc ggc ccc ggc cag gac ctc tca ccg ctg gtc gac gcc 2783  
 Phe Val Glu Ile Gly Pro Gly Gln Asp Leu Ser Pro Leu Val Asp Gly  
                   915                                  920                                  925

atc gcc ctg cag aac ggc acg gcg gac gag gtg cac gcg ctg cac acc 2831  
 Ile Ala Leu Gln Asn Gly Thr Ala Asp Glu Val His Ala Leu His Thr  
                   930                                  935                                  940

gcg ctc gcc cgc ctc ttc aca cgc ggc gcc acg ctc gac tgg tcc cgc 2879  
 Ala Leu Ala Arg Leu Phe Thr Arg Gly Ala Thr Leu Asp Trp Ser Arg  
                   945                                  950                                  955

atc ctc ggc ggt gct tcg cgg cac gac cct gac gtc ccc tcg tac gcg 2927  
 Ile Leu Gly Gly Ala Ser Arg His Asp Pro Asp Val Pro Ser Tyr Ala  
                   960                                  965                                  970                                  975

ttc cag cgg cgt ccc tac tgg atc gag tcg gct ccc ccg gcc acg gcc 2975  
 Phe Gln Arg Arg Pro Tyr Trp Ile Glu Ser Ala Pro Pro Ala Thr Ala  
                   980                                  985                                  990

gac tcg ggc cac ccc gtc ctc ggc acc gga gtc gcc gtc gcc ggg tcg 3023  
 Asp Ser Gly His Pro Val Leu Gly Thr Gly Val Ala Val Ala Gly Ser  
                   995                                  1000                                  1005

ccg ggc cgg gtg ttc acg ggt ccc gtg ccc gcc ggt gcg gac cgc gcg 3071  
 Pro Gly Arg Val Phe Thr Gly Pro Val Pro Ala Gly Ala Asp Arg Ala  
                   1010                                  1015                                  1020

gtg ttc atc gcc gaa ctg gcg ctc gcc gcc gcc gac gcc acc gac tgc 3119  
 Val Phe Ile Ala Glu Leu Ala Leu Ala Ala Ala Asp Ala Thr Asp Cys  
                   1025                                  1030                                  1035

05440300 97E04650



gcc	acg	gtc	gaa	cag	ctc	gac	gtc	acc	tcc	gtg	ccc	ggc	gga	tcc	gcc	3167
Ala	Thr	Val	Glu	Gln	Leu	Asp	Val	Thr	Ser	Val	Pro	Gly	Gly	Ser	Ala	
1040					1045					1050					1055	
cgc	ggc	agg	gcc	acc	gcg	cag	acc	tgg	gtc	gat	gaa	ccc	gcc	gcc	gac	3215
Arg	Gly	Arg	Ala	Thr	Ala	Gln	Thr	Trp	Val	Asp	Glu	Pro	Ala	Ala	Asp	
				1060					1065					1070		
ggg	cgg	cgc	cgc	ttc	acc	gtc	cac	acc	cgc	gtc	ggc	gac	gcc	ccg	tgg	3263
Gly	Arg	Arg	Arg	Phe	Thr	Val	His	Thr	Arg	Val	Gly	Asp	Ala	Pro	Trp	
				1075				1080					1085			
acg	ctg	cac	gcc	gag	ggg	gtt	ctc	cgc	ccc	ggc	cgc	gtg	ccc	cag	ccc	3311
Thr	Leu	His	Ala	Glu	Gly	Val	Leu	Arg	Pro	Gly	Arg	Val	Pro	Gln	Pro	
			1090				1095					1100				
gaa	gcc	gtc	gac	acc	gcc	tgg	ccc	ccg	ccg	ggc	gcg	gtg	ccc	gcg	gac	3359
Glu	Ala	Val	Asp	Thr	Ala	Trp	Pro	Pro	Pro	Gly	Ala	Val	Pro	Ala	Asp	
			1105			1110					1115					
ggg	ctg	ccc	ggg	gcg	tgg	cga	cgc	gcg	gac	cag	gtc	ttc	gtc	gaa	gcc	3407
Gly	Leu	Pro	Gly	Ala	Trp	Arg	Arg	Ala	Asp	Gln	Val	Phe	Val	Glu	Ala	
1120					1125				1130						1135	
gaa	gtc	gac	agc	cct	gac	ggc	ttc	gtg	gca	cac	ccc	gac	ctg	ctc	gac	3455
Glu	Val	Asp	Ser	Pro	Asp	Gly	Phe	Val	Ala	His	Pro	Asp	Leu	Leu	Asp	
				1140				1145						1150		
gcg	gtc	ttc	tcc	gcg	gtc	ggc	gac	ggg	agc	cgc	cag	ccg	acc	gga	tgg	3503
Ala	Val	Phe	Ser	Ala	Val	Gly	Asp	Gly	Ser	Arg	Gln	Pro	Thr	Gly	Trp	
			1155					1160					1165			
cgc	gac	ctc	gcg	gtg	cac	gcg	tcg	gac	gcc	acc	gtg	ctg	cgc	gcc	tgc	3551
Arg	Asp	Leu	Ala	Val	His	Ala	Ser	Asp	Ala	Thr	Val	Leu	Arg	Ala	Cys	
			1170				1175					1180				
ctc	acc	cgc	cgc	gac	agt	ggt	gtc	gtg	gag	ctc	gcc	gcc	ttc	gac	ggt	3599
Leu	Thr	Arg	Arg	Asp	Ser	Gly	Val	Val	Glu	Leu	Ala	Ala	Phe	Asp	Gly	
			1185			1190				1195						
gcc	gga	atg	ccg	gtg	ctc	acc	gcg	gag	tcg	gtg	acg	ctg	ggc	gag	gtc	3647
Ala	Gly	Met	Pro	Val	Leu	Thr	Ala	Glu	Ser	Val	Thr	Leu	Gly	Glu	Val	
1200					1205				1210						1215	
gcg	tcg	gca	ggc	gga	tcc	gac	gag	tcg	gac	ggt	ctg	ctt	cgg	ctt	gag	3695
Ala	Ser	Ala	Gly	Gly	Ser	Asp	Glu	Ser	Asp	Gly	Leu	Leu	Arg	Leu	Glu	
			1220					1225						1230		
tgg	ttg	ccg	gtg	gcg	gag	gcc	cac	tac	gac	ggt	gcc	gac	gag	ctg	ccc	3743
Trp	Leu	Pro	Val	Ala	Glu	Ala	His	Tyr	Asp	Gly	Ala	Asp	Glu	Leu	Pro	
			1235				1240					1				

ccc Pro	acc Thr	aac Asn	ccc Pro	cac His	aac Asn	aca Thr	ccc Pro	aca Thr	cgc Arg	acc Thr	cac His	aca Thr	caa Gln	acc Thr	aca Thr	3839
1265			1270			1275										
cgc Arg	gtc Val	ctc Leu	acc Thr	gcc Ala	ctc Leu	caa Gln	cac His	cac His	ctc Leu	atc Ile	acc Thr	acc Thr	aac Asn	cac His	acc Thr	3887
1280			1285			1290						1295				
ctc Leu	atc Ile	gtc Val	cac His	acc Thr	acc Thr	acc Thr	gac Asp	ccc Pro	cca Pro	ggc Gly	gcc Ala	gcc Ala	gtc Val	acc Thr	ggc Gly	3935
			1300			1305						1310				
ctc Leu	acc Thr	cgc Arg	acc Thr	gca Ala	caa Gln	aac Asn	gaa Glu	cac His	ccc Pro	ggc Gly	cgc Arg	atc Ile	cac His	ctc Leu	atc Ile	3983
			1315			1320						1325				
gaa Glu	acc Thr	cac His	cac His	ccc Pro	cac His	acc Thr	cca Pro	ctc Leu	ccc Pro	ctc Leu	acc Thr	caa Gln	ctc Leu	acc Thr	acc Thr	4031
1330						1335						1340				
ctc Leu	cac His	caa Gln	ccc Pro	cac His	cta Leu	cgc Arg	ctc Leu	acc Thr	aac Asn	aac Asn	acc Thr	ctc Leu	cac His	acc Thr	ccc Pro	4079
1345						1350						1355				
cac His	ctc Leu	acc Thr	ccc Pro	atc Ile	acc Thr	acc Thr	cac His	cac His	aac Asn	acc Thr	acc Thr	aca Thr	acc Thr	acc Thr	ccc Pro	4127
1360			1365			1370						1375				
aac Asn	acc Thr	cca Pro	ccc Pro	ctc Leu	aac Asn	ccc Pro	aac Asn	cac His	gcc Ala	atc Ile	ctc Leu	atc Ile	acc Thr	ggc Gly	ggc Gly	4175
			1380			1385						1390				
tcc Ser	ggc Gly	acc Thr	ctc Leu	gcc Ala	ggc Gly	atc Ile	ctc Leu	gcc Ala	cgc Arg	cac His	ctc Leu	aac Asn	cac His	ccc Pro	cac His	4223
			1395			1400						1405				
acc Thr	tac Tyr	ctc Leu	ctc Leu	tcc Ser	cgc Arg	aca Thr	cca Pro	cca Pro	ccc Pro	ccc Pro	acc Thr	aca Thr	ccc Pro	ggc Gly	acc Thr	4271
1410						1415						1420				
cac His	atc Ile	ccc Pro	tgc Cys	gac Asp	ctc Leu	acc Thr	gac Asp	ccc Pro	acc Thr	caa Gln	atc Ile	acc Thr	caa Gln	gcc Ala	ctc Leu	4319
1425						1430						1435				
acc Thr	cac His	ata Ile	cca Pro	caa Gln	ccc Pro	ctc Leu	acc Thr	ggc Gly	atc Ile	ttc Phe	cac His	acc Thr	gcc Ala	gcc Ala	acc Thr	4367
1440			1445			1450						1455				
ctc Leu	gac Asp	gac Asp	gcc Ala	acc Thr	ctc Leu	acc Thr	aac Asn	ctc Leu	acc Thr	ccc Pro	caa Gln	cac His	ctc Leu	acc Thr	acc Thr	4415
			1460			1465						1470				
acc Thr	ctc Leu	caa Gln	ccc Pro	aaa Lys	gcc Ala	gac Asp	gcc Ala	gcc Ala	tgg Trp	cac His	ctc Leu	cac His	cac His	cac His	acc Thr	4463
1475						1480						1485				

caa aac caa ccc ctc acc cac ttc gtc ctc tac tcc agc gcc gcc gcc 4511  
 Gln Asn Gln Pro Leu Thr His Phe Val Leu Tyr Ser Ser Ala Ala Ala  
           1490                          1495                          1500

acc ctc ggc agc ccc ggc caa gcc aac tac gcc gcc gcc aac gcc ttc 4559  
 Thr Leu Gly Ser Pro Gly Gln Ala Asn Tyr Ala Ala Ala Asn Ala Phe  
           1505                          1510                          1515

ctc gac gcc ctc gcc acc cac cgc cac acc caa gga caa ccc gcc acc 4607  
 Leu Asp Ala Leu Ala Thr His Arg His Thr Gln Gly Gln Pro Ala Thr  
           1520                          1525                          1530                          1535

acc atc gcc tgg ggc atg tgg cac acc acc acc aca ctc acc agc caa 4655  
 Thr Ile Ala Trp Gly Met Trp His Thr Thr Thr Thr Leu Thr Ser Gln  
                           1540                          1545                          1550

ctc acc gac agc gac cgc gac cgc atc cgc cgc ggc ggc ttc ctg ccg 4703  
 Leu Thr Asp Ser Asp Arg Asp Arg Ile Arg Arg Gly Gly Phe Leu Pro  
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atc tcg gac gac gag ggc atg c 4725  
 Ile Ser Asp Asp Glu Gly Met  
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<210> 25

<211> 1574

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic PKS  
 synthase fragment

<400> 25

Met Arg Leu Tyr Glu Ala Ala Arg Arg Thr Gly Ser Pro Val Val Val  
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Ala Ala Ala Leu Asp Asp Ala Pro Asp Val Pro Leu Leu Arg Gly Leu  
           20                          25                          30

Arg Arg Thr Thr Val Arg Arg Ala Ala Val Arg Glu Arg Ser Leu Ala  
           35                          40                          45

Asp Arg Ser Pro Cys Cys Pro Thr Thr Ser Ala Pro Thr Pro Pro Ser  
           50                          55                          60

Arg Ser Ser Trp Asn Ser Thr Ala Thr Val Leu Gly His Leu Gly Ala  
           65                          70                          75                          80

Glu Asp Ile Pro Ala Thr Thr Thr Phe Lys Glu Leu Gly Ile Asp Ser  
                           85                          90                          95

Leu Thr Ala Val Gln Leu Arg Asn Ala Leu Thr Thr Ala Thr Gly Val  
           100                          105                          110

"SEQUENCE" 082701

Arg	Leu	Asn	Ala	Thr	Ala	Val	Phe	Asp	Phe	Pro	Thr	Pro	Arg	Ala	Leu
115						120						125			
Ala	Ala	Arg	Leu	Gly	Asp	Glu	Leu	Ala	Gly	Thr	Arg	Ala	Pro	Val	Ala
130						135						140			
Ala	Arg	Thr	Ala	Ala	Thr	Ala	Ala	Ala	His	Asp	Glu	Pro	Leu	Ala	Ile
145						150						155			
Val	Gly	Met	Ala	Cys	Arg	Leu	Pro	Gly	Gly	Val	Ala	Ser	Pro	Gln	Glu
			165						170						
Leu	Trp	Arg	Leu	Val	Ala	Ser	Gly	Thr	Asp	Ala	Ile	Thr	Glu	Phe	Pro
			180						185						
Ala	Asp	Arg	Gly	Trp	Asp	Val	Asp	Ala	Leu	Tyr	Asp	Pro	Asp	Pro	Asp
			195						200			205			
Ala	Ile	Gly	Lys	Thr	Phe	Val	Arg	His	Gly	Gly	Phe	Leu	Asp	Gly	Ala
210						215						220			
Thr	Gly	Phe	Asp	Ala	Ala	Phe	Phe	Gly	Ile	Ser	Pro	Arg	Glu	Ala	Leu
225						230						235			
Ala	Met	Asp	Pro	Gln	Gln	Arg	Val	Leu	Leu	Glu	Thr	Ser	Trp	Glu	Ala
			245						250						
Phe	Glu	Ser	Ala	Gly	Ile	Thr	Pro	Asp	Ala	Ala	Arg	Gly	Ser	Asp	Thr
			260						265			270			
Gly	Val	Phe	Ile	Gly	Ala	Phe	Ser	Tyr	Gly	Tyr	Gly	Thr	Gly	Ala	Asp
275						280						285			
Thr	Asn	Gly	Phe	Gly	Ala	Thr	Gly	Ser	Gln	Thr	Ser	Val	Leu	Ser	Gly
290						295						300			
Arg	Leu	Ser	Tyr	Phe	Tyr	Gly	Leu	Glu	Gly	Pro	Ser	Val	Thr	Val	Asp
305						310						315			
Thr	Ala	Cys	Ser	Ser	Ser	Leu	Val	Ala	Leu	His	Gln	Ala	Gly	Gln	Ser
			325						330						
Leu	Arg	Ser	Gly	Glu	Cys	Ser	Leu	Ala	Leu	Val	Gly	Gly	Val	Thr	Val
			340						345			350			
Met	Ala	Ser	Pro	Gly	Gly	Phe	Val	Glu	Phe	Ser	Arg	Gln	Arg	Gly	Leu
355						360						365			
Ala	Pro	Asp	Gly	Arg	Ala	Lys	Ala	Phe	Gly	Ala	Gly	Ala	Asp	Gly	Thr
370						375						380			
Ser	Phe	Ala	Glu	Gly	Ala	Gly	Ala	Leu	Val	Val	Glu	Arg	Leu	Ser	Asp
385						390						395			
Ala	Glu	Arg	His	Gly	His	Thr	Val	Leu	Ala	Leu	Val	Arg	Gly	Ser	Ala
			405						410						

Ala Asn Ser Asp Gly Ala Ser Asn Gly Leu Ser Ala Pro Asn Gly Pro  
 420 425 430  
 Ser Gln Glu Arg Val Ile His Gln Ala Leu Ala Asn Ala Lys Leu Thr  
 435 440 445  
 Pro Ala Asp Val Asp Ala Val Glu Ala His Gly Thr Gly Thr Arg Leu  
 450 455 460  
 Gly Asp Pro Ile Glu Ala Gln Ala Leu Leu Ala Thr Tyr Gly Gln Asp  
 465 470 475 480  
 Arg Ala Thr Pro Leu Leu Leu Gly Ser Leu Lys Ser Asn Ile Gly His  
 485 490 495  
 Ala Gln Ala Ala Ser Gly Val Ala Gly Ile Ile Lys Met Val Gln Ala  
 500 505 510  
 Ile Arg His Gly Glu Leu Pro Pro Thr Leu His Ala Asp Glu Pro Ser  
 515 520 525  
 Pro His Val Asp Trp Thr Ala Gly Ala Val Glu Leu Leu Thr Ser Ala  
 530 535 540  
 Arg Pro Trp Pro Gly Thr Gly Arg Pro Arg Arg Ala Ala Val Ser Ser  
 545 550 555 560  
 Phe Gly Val Ser Gly Thr Asn Ala His Ile Ile Leu Glu Ala Gly Pro  
 565 570 575  
 Val Lys Thr Gly Pro Val Glu Ala Gly Ala Ile Glu Ala Gly Pro Val  
 580 585 590  
 Glu Val Gly Pro Val Glu Ala Gly Pro Leu Pro Ala Ala Pro Pro Ser  
 595 600 605  
 Ala Pro Gly Glu Asp Leu Pro Leu Leu Val Ser Ala Arg Ser Pro Glu  
 610 615 620  
 Ala Leu Asp Glu Gln Ile Gly Arg Leu Arg Ala Tyr Leu Asp Thr Gly  
 625 630 635 640  
 Pro Gly Val Asp Arg Ala Ala Val Ala Gln Thr Leu Ala Arg Arg Thr  
 645 650 655  
 His Phe Thr His Arg Ala Val Leu Leu Gly Asp Thr Val Ile Gly Ala  
 660 665 670  
 Pro Pro Ala Asp Gln Ala Asp Glu Leu Val Phe Val Tyr Ser Gly Gln  
 675 680 685  
 Gly Thr Gln His Pro Ala Met Gly Glu Gln Leu Ala Ala Ala Phe Pro  
 690 695 700  
 Val Phe Ala Asp Ala Trp His Asp Ala Leu Arg Arg Leu Asp Asp Pro  
 705 710 715 720

Asp Pro His Asp Pro Thr Arg Ser Gln His Thr Leu Phe Ala His Gln  
 725 730 735  
 Ala Ala Phe Thr Ala Leu Leu Arg Ser Trp Asp Ile Thr Pro His Ala  
 740 745 750  
 Val Ile Gly His Ser Leu Gly Glu Ile Thr Ala Ala Tyr Ala Ala Gly  
 755 760 765  
 Ile Leu Ser Leu Asp Asp Ala Cys Thr Leu Ile Thr Thr Arg Ala Arg  
 770 775 780  
 Leu Met His Thr Leu Pro Pro Pro Gly Ala Met Val Thr Val Leu Thr  
 785 790 795 800  
 Ser Glu Glu Glu Ala Arg Gln Ala Leu Arg Pro Gly Val Glu Ile Ala  
 805 810 815  
 Ala Val Phe Gly Pro His Ser Val Val Leu Ser Gly Asp Glu Asp Ala  
 820 825 830  
 Val Leu Asp Val Ala Gln Arg Leu Gly Ile His His Arg Leu Pro Ala  
 835 840 845  
 Pro His Ala Gly His Ser Ala His Met Glu Pro Val Ala Ala Glu Leu  
 850 855 860  
 Leu Ala Thr Thr Arg Glu Leu Arg Tyr Asp Arg Pro His Thr Ala Ile  
 865 870 875 880  
 Pro Asn Asp Pro Thr Thr Ala Glu Tyr Trp Ala Glu Gln Val Arg Asn  
 885 890 895  
 Pro Val Leu Phe His Ala His Thr Gln Arg Tyr Pro Asp Ala Val Phe  
 900 905 910  
 Val Glu Ile Gly Pro Gly Gln Asp Leu Ser Pro Leu Val Asp Gly Ile  
 915 920 925  
 Ala Leu Gln Asn Gly Thr Ala Asp Glu Val His Ala Leu His Thr Ala  
 930 935 940  
 Leu Ala Arg Leu Phe Thr Arg Gly Ala Thr Leu Asp Trp Ser Arg Ile  
 945 950 955 960  
 Leu Gly Gly Ala Ser Arg His Asp Pro Asp Val Pro Ser Tyr Ala Phe  
 965 970 975  
 Gln Arg Arg Pro Tyr Trp Ile Glu Ser Ala Pro Pro Ala Thr Ala Asp  
 980 985 990  
 Ser Gly His Pro Val Leu Gly Thr Gly Val Ala Val Ala Gly Ser Pro  
 995 1000 1005  
 Gly Arg Val Phe Thr Gly Pro Val Pro Ala Gly Ala Asp Arg Ala Val  
 1010 1015 1020

004036 000460  
 004036 000460

Phe	Ile	Ala	Glu	Leu	Ala	Leu	Ala	Ala	Ala	Asp	Ala	Thr	Asp	Cys	Ala	
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Thr	Val	Glu	Gln	Leu	Asp	Val	Thr	Ser	Val	Pro	Gly	Gly	Ser	Ala	Arg	
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Gly	Arg	Ala	Thr	Ala	Gln	Thr	Trp	Val	Asp	Glu	Pro	Ala	Ala	Asp	Gly	
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Arg	Arg	Arg	Phe	Thr	Val	His	Thr	Arg	Val	Gly	Asp	Ala	Pro	Trp	Thr	
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Leu	His	Ala	Glu	Gly	Val	Leu	Arg	Pro	Gly	Arg	Val	Pro	Gln	Pro	Glu	
	1090					1095					1100					
Ala	Val	Asp	Thr	Ala	Trp	Pro	Pro	Pro	Gly	Ala	Val	Pro	Ala	Asp	Gly	
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Leu	Pro	Gly	Ala	Trp	Arg	Arg	Ala	Asp	Gln	Val	Phe	Val	Glu	Ala	Glu	
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Val	Asp	Ser	Pro	Asp	Gly	Phe	Val	Ala	His	Pro	Asp	Leu	Leu	Asp	Ala	
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Val	Phe	Ser	Ala	Val	Gly	Asp	Gly	Ser	Arg	Gln	Pro	Thr	Gly	Trp	Arg	
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Asp	Leu	Ala	Val	His	Ala	Ser	Asp	Ala	Thr	Val	Leu	Arg	Ala	Cys	Leu	
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Thr	Arg	Arg	Asp	Ser	Gly	Val	Val	Glu	Leu	Ala	Ala	Phe	Asp	Gly	Ala	
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Gly	Met	Pro	Val	Leu	Thr	Ala	Glu	Ser	Val	Thr	Leu	Gly	Glu	Val	Ala	
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Ser	Ala	Gly	Gly	Ser	Asp	Glu	Ser	Asp	Gly	Leu	Leu	Arg	Leu	Glu	Trp	
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Leu	Pro	Val	Ala	Glu	Ala	His	Tyr	Asp	Gly	Ala	Asp	Glu	Leu	Pro	Glu	
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Gly	Tyr	Thr	Leu	Ile	Thr	Ala	Thr	His	Pro	Asp	Asp	Pro	Asp	Asp	Pro	
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Thr	Asn	Pro	His	Asn	Thr	Pro	Thr	Arg	Thr	His	Thr	Gln	Thr	Thr	Arg	
265					1270					1275					128	
Val	Leu	Thr	Ala	Leu	Gln	His	His	Leu	Ile	Thr	Thr	Asn	His	Thr	Leu	
			1285						1290					1295		
Ile	Val	His	Thr	Thr	Thr	Asp	Pro	Pro	Gly	Ala	Ala	Val	Thr	Gly	Leu	
		1300						1305					1310			
Thr	Arg	Thr	Ala	Gln	Asn	Glu	His	Pro	Gly	Arg	Ile	His	Leu	Ile	Glu	
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Thr His His Pro His Thr Pro Leu Pro Leu Thr Gln Leu Thr Thr Leu  
 1330 1335 1340  
 His Gln Pro His Leu Arg Leu Thr Asn Asn Thr Leu His Thr Pro His  
 345 1350 1355 136  
 Leu Thr Pro Ile Thr Thr His His Asn Thr Thr Thr Thr Thr Pro Asn  
 1365 1370 1375  
 Thr Pro Pro Leu Asn Pro Asn His Ala Ile Leu Ile Thr Gly Gly Ser  
 1380 1385 1390  
 Gly Thr Leu Ala Gly Ile Leu Ala Arg His Leu Asn His Pro His Thr  
 1395 1400 1405  
 Tyr Leu Leu Ser Arg Thr Pro Pro Pro Pro Thr Thr Pro Gly Thr His  
 1410 1415 1420  
 Ile Pro Cys Asp Leu Thr Asp Pro Thr Gln Ile Thr Gln Ala Leu Thr  
 425 1430 1435 144  
 His Ile Pro Gln Pro Leu Thr Gly Ile Phe His Thr Ala Ala Thr Leu  
 1445 1450 1455  
 Asp Asp Ala Thr Leu Thr Asn Leu Thr Pro Gln His Leu Thr Thr Thr  
 1460 1465 1470  
 Leu Gln Pro Lys Ala Asp Ala Ala Trp His Leu His His His Thr Gln  
 1475 1480 1485  
 Asn Gln Pro Leu Thr His Phe Val Leu Tyr Ser Ser Ala Ala Ala Thr  
 1490 1495 1500  
 Leu Gly Ser Pro Gly Gln Ala Asn Tyr Ala Ala Ala Asn Ala Phe Leu  
 505 1510 1515 152  
 Asp Ala Leu Ala Thr His Arg His Thr Gln Gly Gln Pro Ala Thr Thr  
 1525 1530 1535  
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 1540 1545 1550  
 Thr Asp Ser Asp Arg Asp Arg Ile Arg Arg Gly Gly Phe Leu Pro Ile  
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 Ser Asp Asp Glu Gly Met  
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&lt;210&gt; 26

&lt;211&gt; 4674

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

 <223> Description of Artificial Sequence: DNA encoding synthetic  
 PKS synthase fragment

 0940316  
 102280 "S1E04560



&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (3) .. (4673)

&lt;400&gt; 26

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Met Arg Leu Tyr Glu Ala Ala Arg Arg Thr Gly Ser Pro Val Val	
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gtg gcg gcc gcg ctc gac gac gcg ccg gac gtg ccg ctg ctg cgc ggg	95
Val Ala Ala Ala Leu Asp Asp Ala Pro Asp Val Pro Leu Leu Arg Gly	
20 25 30	
ctg cgg cgt acg acc gtc cgg cgt gcc gcc gtc cgg gaa cgc tct ctc	143
Leu Arg Arg Thr Val Arg Arg Ala Ala Val Arg Glu Arg Ser Leu	
35 40 45	
gcc gac cgc tcg ccg tgc tgc ccg acg acg agc gcg ccg acg cct ccc	191
Ala Asp Arg Ser Pro Cys Cys Pro Thr Thr Ser Ala Pro Thr Pro Pro	
50 55 60	
tcg cgt tcg tcc tgg aac agc acc gcc acc gtg ctc ggc cac ctg ggc	239
Ser Arg Ser Ser Trp Asn Ser Thr Ala Thr Val Leu Gly His Leu Gly	
65 70 75	
gcc gaa gac atc ccg gcg acg acg acg ttc aag gaa ctc ggc atc gac	287
Ala Glu Asp Ile Pro Ala Thr Thr Thr Phe Lys Glu Leu Gly Ile Asp	
80 85 90 95	
tcg ctc acc gcg gtc cag ctg cgc aac gcg ctg acc acg gcg acc ggc	335
Ser Leu Thr Ala Val Gln Leu Arg Asn Ala Leu Thr Thr Ala Thr Gly	
100 105 110	
gta cgc ctc aac gcc aca gcg gtc ttc gac ttt ccg acg ccg cgc gcg	383
Val Arg Leu Asn Ala Thr Ala Val Phe Asp Phe Pro Thr Pro Arg Ala	
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Leu Ala Ala Arg Leu Gly Asp Glu Leu Ala Gly Thr Arg Ala Pro Val	
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Ala Ala Arg Thr Ala Ala Thr Ala Ala Ala His Asp Glu Pro Leu Ala	
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Ile Val Gly Met Ala Cys Arg Leu Pro Gly Gly Val Ala Ser Pro Gln	
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Glu Leu Trp Arg Leu Val Ala Ser Gly Thr Asp Ala Ile Thr Glu Phe	
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Pro Ala Asp Arg Gly Trp Asp Val Asp Ala Leu Tyr Asp Pro Asp Pro	
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Leu	Ala	Met	Asp	Pro	Gln	Gln	Arg	Val	Leu	Leu	Glu	Thr	Ser	Trp	Glu	
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gcg	ttc	gaa	agc	gcg	ggc	atc	acc	ccg	gac	gcg	gcg	ccg	ggc	agc	gac	815
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Thr	Gly	Val	Phe	Ile	Gly	Ala	Phe	Ser	Tyr	Gly	Tyr	Gly	Thr	Gly	Ala	
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Gly	Arg	Leu	Ser	Tyr	Phe	Tyr	Gly	Leu	Glu	Gly	Pro	Ser	Val	Thr	Val	
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Val	Met	Ala	Ser	Pro	Gly	Gly	Phe	Val	Glu	Phe	Ser	Arg	Gln	Arg	Gly	
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Leu	Ala	Pro	Asp	Gly	Arg	Ala	Lys	Ala	Phe	Gly	Ala	Gly	Ala	Asp	Gly	
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Thr	Ser	Phe	Ala	Glu	Gly	Ala	Gly	Ala	Leu	Val	Val	Glu	Arg	Leu	Ser	
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Ala	Ala	Asn</														

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Pro Ser Gln Glu Arg Val Ile His Gln Ala Leu Ala Asn Ala Lys Leu	
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Thr Pro Ala Asp Val Asp Ala Val Glu Ala His Gly Thr Gly Thr Arg	
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Leu Gly Asp Pro Ile Glu Ala Gln Ala Leu Leu Ala Thr Tyr Gly Gln	
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Asp Arg Ala Thr Pro Leu Leu Leu Gly Ser Leu Lys Ser Asn Ile Gly	
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Ser Pro His Val Asp Trp Thr Ala Gly Ala Val Glu Leu Leu Thr Ser	
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Met Arg Ala Val Ala Ser Thr Leu Ala Met Thr Arg Ser Val Phe Glu	
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His Arg Ala Val Leu Leu Gly Asp Asp Thr Val Thr Gly Thr Ala Val	
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Ile His Gln Gln Val Trp Asp Leu Leu Asp Val Pro Asp Leu Glu Val	
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Asn Glu Thr Gly Tyr Ala Gln Pro Ala Leu Phe Ala Met Gln Val Ala	
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Leu Phe Gly Leu Leu Glu Ser Trp Gly Val Arg Pro Asp Ala Val Ile	
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ggc cat tcg gtg ggt gag ctt gcg gct gcg tat gtg tcc ggg gtg tgg	2255
Gly His Ser Val Gly Glu Leu Ala Ala Tyr Val Ser Gly Val Trp	
740 745 750	
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Ser Leu Glu Asp Ala Cys Thr Leu Val Ser Ala Arg Ala Arg Leu Met	
755 760 765	
cag gct ctg ccc gcg ggt ggg gtg atg gtc gct gtc ccg gtc tcg gag	2351
Gln Ala Leu Pro Ala Gly Gly Val Met Val Ala Val Pro Val Ser Glu	
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Asp Glu Ala Arg Ala Val Leu Gly Glu Gly Val Glu Ile Ala Ala Val	
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Asn Gly Pro Ser Ser Val Val Leu Ser Gly Asp Glu Ala Ala Val Leu	
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Gln Ala Ala Glu Gly Leu Gly Lys Trp Thr Arg Leu Ala Thr Ser His	
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Val Ala Glu Gly Leu Thr Tyr Arg Thr Pro Gln Val Ser Met Ala Val	
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gcc cac ctg tat gtc aac ggc gtc acg gtc gac tgg ccc gcg ctc ctg	2831
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Gln His Gln Arg Tyr Trp Leu Glu Ser Ala Pro Pro Ala Thr Ala Asp	
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Gly Arg Val Phe Thr Gly Pro Val Pro Ala Gly Ala Asp Arg Ala Val	
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Phe Ile Ala Glu Leu Ala Leu Ala Ala Ala Asp Ala Thr Asp Cys Ala	
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Thr Val Glu Gln Leu Asp Val Thr Ser Val Pro Gly Gly Ser Ala Arg	
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Gly Arg Ala Thr Ala Gln Thr Trp Val Asp Glu Pro Ala Ala Asp Gly	
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Arg Arg Arg Phe Thr Val His Thr Arg Val Gly Asp Ala Pro Trp Thr	
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Leu His Ala Glu Gly Val Leu Arg Pro Gly Arg Val Pro Gln Pro Glu	
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4674

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Thr 225	Gly	Phe	Asp	Ala	Ala 230	Phe	Phe	Gly	Ile	Ser 235	Pro	Arg	Glu	Ala	Leu 240
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Phe	Glu	Ser	Ala 260	Gly	Ile	Thr	Pro	Asp 265	Ala	Ala	Arg	Gly	Ser 270	Asp	Thr
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Met	Ala	Ser 355	Pro	Gly	Gly	Phe	Val 360	Glu	Phe	Ser	Arg	Gln 365	Arg	Gly	Leu
Ala	Pro 370	Asp	Gly	Arg	Ala	Lys 375	Ala	Phe	Gly	Ala	Gly 380	Ala	Asp	Gly	Thr
Ser 385	Phe	Ala	Glu	Gly	Ala 390	Gly	Ala	Leu	Val	Val 395	Glu	Arg	Leu	Ser	Asp 400
Ala	Glu	Arg	His	Gly 405	His	Thr	Val	Leu	Ala 410	Leu	Val	Arg	Gly	Ser 415	Ala
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Ser	Gln	Glu 435	Arg	Val	Ile	His	Gln 440	Ala	Leu	Ala	Asn	Ala 445	Lys	Leu	Thr
Pro 450	Ala	Asp	Val	Asp	Ala	Val 455	Glu	Ala	His	Gly	Thr 460	Gly	Thr	Arg	Leu
Gly 465	Asp	Pro	Ile	Glu	Ala 470	Gln	Ala	Leu	Leu	Ala 475	Thr	Tyr	Gly	Gln 480	Asp
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Ile	Arg	His 515	Gly	Glu	Leu	Pro	Pro 520	Thr	Leu	His	Ala	Asp 525	Glu	Pro	Ser

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Arg 545	Pro	Trp	Pro	Gly	Thr 550	Gly	Arg	Pro	Arg	Arg 555	Ala	Gly	Val	Ser	Ser 560
Phe	Gly	Ile	Ser	Gly 565	Thr	Asn	Ala	His	Val 570	Ile	Leu	Glu	Ser	Ala 575	Pro
Pro	Thr	Gln	Pro 580	Ala	Asp	Asn	Ala	Val 585	Ile	Glu	Arg	Ala	Pro 590	Glu	Trp
Val	Pro 595	Leu	Val	Ile	Ser	Ala	Arg 600	Thr	Gln	Ser	Ala	Leu 605	Thr	Glu	His
Glu	Gly 610	Arg	Leu	Arg	Ala	Tyr 615	Leu	Ala	Ala	Ser	Pro 620	Gly	Val	Asp	Met
Arg 625	Ala	Val	Ala	Ser	Thr 630	Leu	Ala	Met	Thr	Arg 635	Ser	Val	Phe	Glu	His 640
Arg	Ala	Val	Leu	Leu 645	Gly	Asp	Asp	Thr	Val 650	Thr	Gly	Thr	Ala	Val 655	Ser
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His 690	Gln	Gln	Val	Trp	Asp	Leu 695	Leu	Asp	Val	Pro	Asp 700	Leu	Glu	Val	Asn
Glu 705	Thr	Gly	Tyr	Ala	Gln 710	Pro	Ala	Leu	Phe	Ala 715	Met	Gln	Val	Ala	Leu 720
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His	Ser	Val	Gly 740	Glu	Leu	Ala	Ala 745	Ala	Tyr	Val	Ser	Gly	Val 750	Trp	Ser
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Val Arg Leu Asn Ala Thr Ala Val Phe Asp Phe Pro Thr Pro Arg Ala  
115 120 125

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Asp Thr Ala Cys Ser Ser Ser Leu Val Ala Leu His Gln Ala Gly Gln	
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Val Met Ala Ser Pro Gly Gly Phe Val Glu Phe Ser Arg Gln Arg Gly	
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Pro Ser Gln Glu Arg Val Ile His Gln Ala Leu Ala Asn Ala Lys Leu	
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Thr Pro Ala Asp Val Asp Ala Val Glu Ala His Gly Thr Gly Thr Arg	
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Val His Thr Thr Thr Asp Pro Pro Gly Ala Ala Val Thr Gly Leu Thr	
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cgc acc gca caa aac gaa cac ccc gcc cgc atc cac ctc atc gaa acc	4031
Arg Thr Ala Gln Asn Glu His Pro Gly Arg Ile His Leu Ile Glu Thr	
1330 1335 1340	
cac cac ccc cac acc cca ctc ccc ctc acc caa ctc acc acc ctc cac	4079
His His Pro His Thr Pro Leu Pro Leu Thr Gln Leu Thr Thr Leu His	
1345 1350 1355	
caa ccc cac cta cgc ctc acc aac aac acc ctc cac acc ccc cac ctc	4127
Gln Pro His Leu Arg Leu Thr Asn Asn Thr Leu His Thr Pro His Leu	
1360 1365 1370 1375	
acc ccc atc acc acc cac cac aac acc acc aca acc acc ccc aac acc	4175
Thr Pro Ile Thr Thr His His Asn Thr Thr Thr Thr Thr Pro Asn Thr	
1380 1385 1390	
cca ccc ctc aac ccc aac cac gcc atc ctc atc acc gcc gcc tcc gcc	4223
Pro Pro Leu Asn Pro Asn His Ala Ile Leu Ile Thr Gly Gly Ser Gly	
1395 1400 1405	
acc ctc gcc gcc atc ctc gcc cgc cac ctc aac cac ccc cac acc tac	4271
Thr Leu Ala Gly Ile Leu Ala Arg His Leu Asn His Pro His Thr Tyr	
1410 1415 1420	

ctc ctc tcc cgc aca cca cca ccc ccc acc aca ccc ggc acc cac atc 4319  
 Leu Leu Ser Arg Thr Pro Pro Pro Pro Thr Thr Pro Gly Thr His Ile  
 1425 1430 1435  
 ccc tgc gac ctc acc gac ccc acc caa atc acc caa gcc ctc acc cac 4367  
 Pro Cys Asp Leu Thr Asp Pro Thr Gln Ile Thr Gln Ala Leu Thr His  
 1440 1445 1450 1455  
 ata cca caa ccc ctc acc ggc atc ttc cac acc gcc gcc acc ctc gac 4415  
 Ile Pro Gln Pro Leu Thr Gly Ile Phe His Thr Ala Ala Thr Leu Asp  
 1460 1465 1470  
 gac gcc acc ctc acc aac ctc acc ccc caa cac ctc acc acc acc ctc 4463  
 Asp Ala Thr Leu Thr Asn Leu Thr Pro Gln His Leu Thr Thr Thr Leu  
 1475 1480 1485  
 caa ccc aaa gcc gac gcc gcc tgg cac ctc cac cac cac acc caa aac 4511  
 Gln Pro Lys Ala Asp Ala Ala Trp His Leu His His His Thr Gln Asn  
 1490 1495 1500  
 caa ccc ctc acc cac ttc gtc ctc tac tcc agc gcc gcc gcc acc ctc 4559  
 Gln Pro Leu Thr His Phe Val Leu Tyr Ser Ser Ala Ala Ala Thr Leu  
 1505 1510 1515  
 ggc agc ccc ggc caa gcc aac tac gcc gcc gcc aac gcc ttc ctc gac 4607  
 Gly Ser Pro Gly Gln Ala Asn Tyr Ala Ala Ala Asn Ala Phe Leu Asp  
 1520 1525 1530 1535  
 gcc ctc gcc acc cac cgc cac acc caa gga caa ccc gcc acc acc atc 4655  
 Ala Leu Ala Thr His Arg His Thr Gln Gly Gln Pro Ala Thr Thr Ile  
 1540 1545 1550  
 gcc tgg ggc atg tgg cac acc acc acc aca ctc acc agc caa ctc acc 4703  
 Ala Trp Gly Met Trp His Thr Thr Thr Leu Thr Ser Gln Leu Thr  
 1555 1560 1565  
 gac agc gac cgc gac cgc atc cgc cgc ggc ggc ttc ctg ccg atc tcg 4751  
 Asp Ser Asp Arg Asp Arg Ile Arg Arg Gly Gly Phe Leu Pro Ile Ser  
 1570 1575 1580  
 gac gac gag ggc atg c 4767  
 Asp Asp Glu Gly Met  
 1585

<210> 29

<211> 1588

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic PKS  
synthase fragment

<400> 29

Met Arg Leu Tyr Glu Ala Ala Arg Arg Thr Gly Ser Pro Val Val Val  
 1 5 10 15

T04280" SE04660

Ala Ala Ala Leu Asp Asp Ala Pro Asp Val Pro Leu Leu Arg Gly Leu  
 20 25 30  
 Arg Arg Thr Thr Val Arg Arg Ala Ala Val Arg Glu Arg Ser Leu Ala  
 35 40 45  
 Asp Arg Ser Pro Cys Cys Pro Thr Thr Ser Ala Pro Thr Pro Pro Ser  
 50 55 60  
 Arg Ser Ser Trp Asn Ser Thr Ala Thr Val Leu Gly His Leu Gly Ala  
 65 70 75 80  
 Glu Asp Ile Pro Ala Thr Thr Thr Phe Lys Glu Leu Gly Ile Asp Ser  
 85 90 95  
 Leu Thr Ala Val Gln Leu Arg Asn Ala Leu Thr Thr Ala Thr Gly Val  
 100 105 110  
 Arg Leu Asn Ala Thr Ala Val Phe Asp Phe Pro Thr Pro Arg Ala Leu  
 115 120 125  
 Ala Ala Arg Leu Gly Asp Glu Leu Ala Gly Thr Arg Ala Pro Val Ala  
 130 135 140  
 Ala Arg Thr Ala Ala Thr Ala Ala Ala His Asp Glu Pro Leu Ala Ile  
 145 150 155 160  
 Val Gly Met Ala Cys Arg Leu Pro Gly Gly Val Ala Ser Pro Gln Glu  
 165 170 175  
 Leu Trp Arg Leu Val Ala Ser Gly Thr Asp Ala Ile Thr Glu Phe Pro  
 180 185 190  
 Ala Asp Arg Gly Trp Asp Val Asp Ala Leu Tyr Asp Pro Asp Pro Asp  
 195 200 205  
 Ala Ile Gly Lys Thr Phe Val Arg His Gly Gly Phe Leu Asp Gly Ala  
 210 215 220  
 Thr Gly Phe Asp Ala Ala Phe Phe Gly Ile Ser Pro Arg Glu Ala Leu  
 225 230 235 240  
 Ala Met Asp Pro Gln Gln Arg Val Leu Leu Glu Thr Ser Trp Glu Ala  
 245 250 255  
 Phe Glu Ser Ala Gly Ile Thr Pro Asp Ala Ala Arg Gly Ser Asp Thr  
 260 265 270  
 Gly Val Phe Ile Gly Ala Phe Ser Tyr Gly Tyr Gly Thr Gly Ala Asp  
 275 280 285  
 Thr Asn Gly Phe Gly Ala Thr Gly Ser Gln Thr Ser Val Leu Ser Gly  
 290 295 300  
 Arg Leu Ser Tyr Phe Tyr Gly Leu Glu Gly Pro Ser Val Thr Val Asp  
 305 310 315 320

002280" 9FE04650  
 0034036-003770

Thr	Ala	Cys	Ser	Ser	Ser	Leu	Val	Ala	Leu	His	Gln	Ala	Gly	Gln	Ser	
				325							330			335		
Leu	Arg	Ser	Gly	Glu	Cys	Ser	Leu	Ala	Leu	Val	Gly	Gly	Val	Thr	Val	
				340							345			350		
Met	Ala	Ser	Pro	Gly	Gly	Phe	Val	Glu	Phe	Ser	Arg	Gln	Arg	Gly	Leu	
				355							360			365		
Ala	Pro	Asp	Gly	Arg	Ala	Lys	Ala	Phe	Gly	Ala	Gly	Ala	Asp	Gly	Thr	
				370							375			380		
Ser	Phe	Ala	Glu	Gly	Ala	Gly	Ala	Leu	Val	Val	Glu	Arg	Leu	Ser	Asp	
385											390			395		
Ala	Glu	Arg	His	Gly	His	Thr	Val	Leu	Ala	Leu	Val	Arg	Gly	Ser	Ala	
				405							410			415		
Ala	Asn	Ser	Asp	Gly	Ala	Ser	Asn	Gly	Leu	Ser	Ala	Pro	Asn	Gly	Pro	
				420							425			430		
Ser	Gln	Glu	Arg	Val	Ile	His	Gln	Ala	Leu	Ala	Asn	Ala	Lys	Leu	Thr	
				435							440			445		
Pro	Ala	Asp	Val	Asp	Ala	Val	Glu	Ala	His	Gly	Thr	Gly	Thr	Arg	Leu	
				450							455			460		
Gly	Asp	Pro	Ile	Glu	Ala	Gln	Ala	Leu	Leu	Ala	Thr	Tyr	Gly	Gln	Asp	
465											470			475		
Arg	Ala	Thr	Pro	Leu	Leu	Leu	Gly	Ser	Leu	Lys	Ser	Asn	Ile	Gly	His	
				485							490			495		
Ala	Gln	Ala	Ala	Ser	Gly	Val	Ala	Gly	Ile	Ile	Lys	Met	Val	Gln	Ala	
				500							505			510		
Ile	Arg	His	Gly	Glu	Leu	Pro	Pro	Thr	Leu	His	Ala	Asp	Glu	Pro	Ser	
				515							520			525		
Pro	His	Val	Asp	Trp	Thr	Ala	Gly	Ala	Val	Glu	Leu	Leu	Thr	Ser	Ala	
				530							535			540		
Arg	Pro	Trp	Pro	Gly	Thr	Gly	Arg	Pro	Arg	Arg	Ala	Gly	Val	Ser	Ser	
545											550			555		
Phe	Gly	Val	Ser	Gly	Thr	Asn	Ala	His	Val	Ile	Leu	Glu	Ser	Ala	Pro	
				565							570			575		
Pro	Ala	Gln	Pro	Ala	Glu	Glu	Ala	Gln	Pro	Val	Glu	Thr	Pro	Val	Val	
				580							585			590		
Ala	Ser	Asp	Val	Leu	Pro	Leu	Val	Ile	Ser	Ala	Lys	Thr	Gln	Pro	Ala	
				595							600			605		
Leu	Thr	Glu	His	Glu	Asp	Arg	Leu	Arg	Ala	Tyr	Leu	Ala	Ala	Ser	Pro	
610											615			620		

Gly Ala Asp Ile Arg Ala Val Ala Ser Thr Leu Ala Val Thr Arg Ser  
 625 630 635 640  
 Val Phe Glu His Arg Ala Val Leu Leu Gly Asp Asp Thr Val Thr Gly  
 645 650 655  
 Thr Ala Val Thr Asp Pro Arg Ile Val Phe Val Phe Pro Gly Gln Gly  
 660 665 670  
 Trp Gln Trp Leu Gly Met Gly Ser Ala Leu Arg Asp Ser Ser Val Val  
 675 680 685  
 Phe Ala Glu Arg Met Ala Glu Cys Ala Ala Ala Leu Arg Glu Phe Val  
 690 695 700  
 Asp Trp Asp Leu Phe Thr Val Leu Asp Asp Pro Ala Val Val Asp Arg  
 705 710 715 720  
 Val Asp Val Val Gln Pro Ala Ser Trp Ala Met Met Val Ser Leu Ala  
 725 730 735  
 Ala Val Trp Gln Ala Ala Gly Val Arg Pro Asp Ala Val Ile Gly His  
 740 745 750  
 Ser Gln Gly Glu Ile Ala Ala Ala Cys Val Ala Gly Ala Val Ser Leu  
 755 760 765  
 Arg Asp Ala Ala Arg Ile Val Thr Leu Arg Ser Gln Ala Ile Ala Arg  
 770 775 780  
 Gly Leu Ala Gly Arg Gly Ala Met Ala Ser Val Ala Leu Pro Ala Gln  
 785 790 795 800  
 Asp Val Glu Leu Val Asp Gly Ala Trp Ile Ala Ala His Asn Gly Pro  
 805 810 815  
 Ala Ser Thr Val Ile Ala Gly Thr Pro Glu Ala Val Asp His Val Leu  
 820 825 830  
 Thr Ala His Glu Ala Gln Gly Val Arg Val Arg Arg Ile Thr Val Asp  
 835 840 845  
 Tyr Ala Ser His Thr Pro His Val Glu Leu Ile Arg Asp Glu Leu Leu  
 850 855 860  
 Asp Ile Thr Ser Asp Ser Ser Ser Gln Thr Pro Leu Val Pro Trp Leu  
 865 870 875 880  
 Ser Thr Val Asp Gly Thr Trp Val Asp Ser Pro Leu Asp Gly Glu Tyr  
 885 890 895  
 Trp Tyr Arg Asn Leu Arg Glu Pro Val Gly Phe His Pro Ala Val Ser  
 900 905 910  
 Gln Leu Gln Ala Gln Gly Asp Thr Val Phe Val Glu Val Ser Ala Ser  
 915 920 925

09040316-082704  
 102280-970460

Pro	Val	Leu	Leu	Gln	Ala	Met	Asp	Asp	Asp	Val	Val	Thr	Val	Ala	Thr	930	935	940
Leu	Arg	Arg	Asp	Asp	Gly	Asp	Ala	Thr	Arg	Met	Leu	Thr	Ala	Leu	Ala	945	950	955
Gln	Ala	Tyr	Val	His	Gly	Val	Thr	Val	Asp	Trp	Pro	Ala	Ile	Leu	Gly	965	970	975
Thr	Thr	Thr	Thr	Arg	Val	Leu	Asp	Leu	Pro	Thr	Tyr	Ala	Phe	Gln	His	980	985	990
Gln	Arg	Tyr	Trp	Leu	Glu	Ser	Ala	Pro	Pro	Ala	Thr	Ala	Asp	Ser	Gly	995	1000	1005
His	Pro	Val	Leu	Gly	Thr	Gly	Val	Ala	Val	Ala	Gly	Ser	Pro	Gly	Arg	1010	1015	1020
Val	Phe	Thr	Gly	Pro	Val	Pro	Ala	Gly	Ala	Asp	Arg	Ala	Val	Phe	Ile	1025	1030	1035
Ala	Glu	Leu	Ala	Leu	Ala	Ala	Ala	Asp	Ala	Thr	Asp	Cys	Ala	Thr	Val	1045	1050	1055
Glu	Gln	Leu	Asp	Val	Thr	Ser	Val	Pro	Gly	Gly	Ser	Ala	Arg	Gly	Arg	1060	1065	1070
Ala	Thr	Ala	Gln	Thr	Trp	Val	Asp	Glu	Pro	Ala	Ala	Asp	Gly	Arg	Arg	1075	1080	1085
Arg	Phe	Thr	Val	His	Thr	Arg	Val	Gly	Asp	Ala	Pro	Trp	Thr	Leu	His	1090	1095	1100
Ala	Glu	Gly	Val	Leu	Arg	Pro	Gly	Arg	Val	Pro	Gln	Pro	Glu	Ala	Val	1105	1110	1115
Asp	Thr	Ala	Trp	Pro	Pro	Pro	Gly	Ala	Val	Pro	Ala	Asp	Gly	Leu	Pro	1125	1130	1135
Gly	Ala	Trp	Arg	Arg	Ala	Asp	Gln	Val	Phe	Val	Glu	Ala	Glu	Val	Asp	1140	1145	1150
Ser	Pro	Asp	Gly	Phe	Val	Ala	His	Pro	Asp	Leu	Leu	Asp	Ala	Val	Phe	1155	1160	1165
Ser	Ala	Val	Gly	Asp	Gly	Ser	Arg	Gln	Pro	Thr	Gly	Trp	Arg	Asp	Leu	1170	1175	1180
Ala	Val	His	Ala	Ser	Asp	Ala	Thr	Val	Leu	Arg	Ala	Cys	Leu	Thr	Arg	1185	1190	1195
Arg	Asp	Ser	Gly	Val	Val	Glu	Leu	Ala	Ala	Phe	Asp	Gly	Ala	Gly	Met	1205	1210	1215
Pro	Val	Leu	Thr	Ala	Glu	Ser	Val	Thr	Leu	Gly	Glu	Val	Ala	Ser	Ala	1220	1225	1230



Gly Gly Ser Asp Glu Ser Asp Gly Leu Leu Arg Leu Glu Trp Leu Pro  
 1235 1240 1245  
 Val Ala Glu Ala His Tyr Asp Gly Ala Asp Glu Leu Pro Glu Gly Tyr  
 1250 1255 1260  
 Thr Leu Ile Thr Ala Thr His Pro Asp Asp Pro Asp Asp Pro Thr Asn  
 1265 1270 1275 128  
 Pro His Asn Thr Pro Thr Arg Thr His Thr Gln Thr Thr Arg Val Leu  
 1285 1290 1295  
 Thr Ala Leu Gln His His Leu Ile Thr Thr Asn His Thr Leu Ile Val  
 1300 1305 1310  
 His Thr Thr Thr Asp Pro Pro Gly Ala Ala Val Thr Gly Leu Thr Arg  
 1315 1320 1325  
 Thr Ala Gln Asn Glu His Pro Gly Arg Ile His Leu Ile Glu Thr His  
 1330 1335 1340  
 His Pro His Thr Pro Leu Pro Leu Thr Gln Leu Thr Thr Leu His Gln  
 1345 1350 1355 136  
 Pro His Leu Arg Leu Thr Asn Asn Thr Leu His Thr Pro His Leu Thr  
 1365 1370 1375  
 Pro Ile Thr Thr His His Asn Thr Thr Thr Thr Thr Pro Asn Thr Pro  
 1380 1385 1390  
 Pro Leu Asn Pro Asn His Ala Ile Leu Ile Thr Gly Gly Ser Gly Thr  
 1395 1400 1405  
 Leu Ala Gly Ile Leu Ala Arg His Leu Asn His Pro His Thr Tyr Leu  
 1410 1415 1420  
 Leu Ser Arg Thr Pro Pro Pro Pro Thr Thr Pro Gly Thr His Ile Pro  
 1425 1430 1435 144  
 Cys Asp Leu Thr Asp Pro Thr Gln Ile Thr Gln Ala Leu Thr His Ile  
 1445 1450 1455  
 Pro Gln Pro Leu Thr Gly Ile Phe His Thr Ala Ala Thr Leu Asp Asp  
 1460 1465 1470  
 Ala Thr Leu Thr Asn Leu Thr Pro Gln His Leu Thr Thr Thr Leu Gln  
 1475 1480 1485  
 Pro Lys Ala Asp Ala Ala Trp His Leu His His His Thr Gln Asn Gln  
 1490 1495 1500  
 Pro Leu Thr His Phe Val Leu Tyr Ser Ser Ala Ala Ala Thr Leu Gly  
 1505 1510 1515 152  
 Ser Pro Gly Gln Ala Asn Tyr Ala Ala Ala Asn Ala Phe Leu Asp Ala  
 1525 1530 1535

002280 9FE04650  
 00404650

Leu Ala Thr His Arg His Thr Gln Gly Gln Pro Ala Thr Thr Ile Ala  
 1540 1545 1550

Trp Gly Met Trp His Thr Thr Thr Thr Leu Thr Ser Gln Leu Thr Asp  
 1555 1560 1565

Ser Asp Arg Asp Arg Ile Arg Arg Gly Gly Phe Leu Pro Ile Ser Asp  
 1570 1575 1580

Asp Glu Gly Met  
 585

<210> 30

<211> 4737

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding synthetic  
 PKS synthase fragment

<220>

<221> CDS

<222> (3)..(4736)

<400> 30

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 Met Arg Leu Tyr Glu Ala Ala Arg Arg Thr Gly Ser Pro Val Val  
 1 5 10 15

gtg gcg gcc gcg ctc gac gac gcg ccg gac gtg ccg ctg ctg cgc ggg 95  
 Val Ala Ala Ala Leu Asp Asp Ala Pro Asp Val Pro Leu Leu Arg Gly  
 20 25 30

ctg cgg cgt acg acc gtc cgg cgt gcc gcc gtc cgg gaa cgc tct ctc 143  
 Leu Arg Arg Thr Val Arg Arg Ala Ala Val Arg Glu Arg Ser Leu  
 35 40 45

gcc gac cgc tcg ccg tgc tgc ccg acg acg agc gcg ccg acg cct ccc 191  
 Ala Asp Arg Ser Pro Cys Cys Pro Thr Thr Ser Ala Pro Thr Pro Pro  
 50 55 60

tcg cgt tcg tcc tgg aac agc acc gcc acc gtg ctc ggc cac ctg ggc 239  
 Ser Arg Ser Ser Trp Asn Ser Thr Ala Thr Val Leu Gly His Leu Gly  
 65 70 75

gcc gaa gac atc ccg gcg acg acg acg ttc aag gaa ctc ggc atc gac 287  
 Ala Glu Asp Ile Pro Ala Thr Thr Thr Phe Lys Glu Leu Gly Ile Asp  
 80 85 90 95

tcg ctc acc gcg gtc cag ctg cgc aac gcg ctg acc acg gcg acc ggc 335  
 Ser Leu Thr Ala Val Gln Leu Arg Asn Ala Leu Thr Thr Ala Thr Gly  
 100 105 110

gta cgc ctc aac gcc aca gcg gtc ttc gac ttt ccg acg ccg cgc gcg 383  
 Val Arg Leu Asn Ala Thr Ala Val Phe Asp Phe Pro Thr Pro Arg Ala  
 115 120 125

FO2280-97ED4660

ctc	gcc	gcg	aga	ctc	ggc	gac	gag	ctg	gcc	ggt	acc	cgc	gcg	ccc	gtc	431
Leu	Ala	Ala	Arg	Leu	Gly	Asp	Glu	Leu	Ala	Gly	Thr	Arg	Ala	Pro	Val	
		130						135					140			
gcg	gcc	cgg	acc	gcg	gcc	acc	gcg	gcc	gcg	cac	gac	gaa	ccg	ctg	gcg	479
Ala	Ala	Arg	Thr	Ala	Ala	Thr	Ala	Ala	Ala	His	Asp	Glu	Pro	Leu	Ala	
		145				150					155					
atc	gtg	ggc	atg	gcc	tgc	cgt	ctg	ccg	ggc	ggg	gtc	gcg	tcg	cca	cag	527
Ile	Val	Gly	Met	Ala	Cys	Arg	Leu	Pro	Gly	Gly	Val	Ala	Ser	Pro	Gln	
		160			165					170					175	
gag	ctg	tgg	cgt	ctc	gtc	gcg	tcc	ggc	acc	gac	gcc	atc	acg	gag	ttc	575
Glu	Leu	Trp	Arg	Leu	Val	Ala	Ser	Gly	Thr	Asp	Ala	Ile	Thr	Glu	Phe	
				180					185					190		
ccc	gcg	gac	cgc	ggc	tgg	gac	gtg	gac	gcg	ctc	tac	gac	ccg	gac	ccc	623
Pro	Ala	Asp	Arg	Gly	Trp	Asp	Val	Asp	Ala	Leu	Tyr	Asp	Pro	Asp	Pro	
			195					200					205			
gac	gcg	atc	ggc	aag	acc	ttc	gtc	cgg	cac	ggc	ggc	ttc	ctc	gac	ggt	671
Asp	Ala	Ile	Gly	Lys	Thr	Phe	Val	Arg	His	Gly	Gly	Phe	Leu	Asp	Gly	
		210					215					220				
gcg	acc	ggc	ttc	gac	gcg	gcg	ttc	ttc	ggg	atc	agc	ccg	cgc	gag	gcc	719
Ala	Thr	Gly	Phe	Asp	Ala	Ala	Phe	Phe	Gly	Ile	Ser	Pro	Arg	Glu	Ala	
		225				230					235					
ctg	gcc	atg	gac	ccg	cag	caa	cgg	gtg	ctc	ctg	gag	acg	tcc	tgg	gag	767
Leu	Ala	Met	Asp	Pro	Gln	Gln	Arg	Val	Leu	Leu	Glu	Thr	Ser	Trp	Glu	
		240			245					250					255	
gcg	ttc	gaa	agc	gcg	ggc	atc	acc	ccg	gac	gcg	gcg	cgg	ggc	agc	gac	815
Ala	Phe	Glu	Ser	Ala	Gly	Ile	Thr	Pro	Asp	Ala	Ala	Arg	Gly	Ser	Asp	
				260					265					270		
acc	ggc	gtg	ttc	atc	ggc	gcg	ttc	tcc	tac	ggg	tac	ggc	acg	ggt	gcg	863
Thr	Gly	Val	Phe	Ile	Gly	Ala	Phe	Ser	Tyr	Gly	Tyr	Gly	Thr	Gly	Ala	
			275					280					285			
gat	acc	aac	ggc	ttc	ggc	gcg	aca	ggg	tcg	cag	acc	agc	gtg	ctc	tcc	911
Asp	Thr	Asn	Gly	Phe	Gly	Ala	Thr	Gly	Ser	Gln	Thr	Ser	Val	Leu	Ser	
		290					295					300				
ggc	cgc	ctc	tcg	tac	ttc	tac	ggt	ctg	gag	ggc	cct	tcg	gtc	acg	gtc	959
Gly	Arg	Leu	Ser	Tyr	Phe	Tyr	Gly	Leu	Glu	Gly	Pro	Ser	Val	Thr	Val	
		305				310					315					
gac	acc	gcc	tgc	tcg	tcg	tca	ctg	gtc	gcc	ctg	cac	cag	gca	ggg	cag	1007
Asp	Thr	Ala	Cys	Ser	Ser	Ser	Leu	Val	Ala	Leu	His	Gln	Ala	Gly	Gln	
		320			325					330					335	
tcc	ctg	cgc														

gtg Val	atg Met	gcg Ala	tcg Ser 355	ccc Pro	ggc Gly	gga Gly	ttc Phe	gtc Val 360	gag Glu	ttc Phe	tcc Ser	cgg Arg 365	cag Gln	cgc Arg	ggg Gly	1103
ctc Leu	gcg Ala 370	ccg Pro	gac Asp	ggg Gly	cgg Arg	gcg Ala	aag Lys 375	gcg Ala	ttc Phe	ggc Gly	gcg Ala 380	ggc Gly	gcg Ala	gac Asp	ggt Gly	1151
acg Thr	agc Ser 385	ttc Phe	gcc Ala	gag Glu	ggc Gly	gcc Ala 390	ggt Gly	gcc Ala	ctg Leu	gtg Val 395	gtc Val	gag Glu	cgg Arg	ctc Leu	tcc Ser	1199
gac Asp 400	gcg Ala	gag Glu	cgc Arg	cac His	ggc Gly 405	cac His	acc Thr	gtc Val	ctc Leu	gcc Ala 410	ctc Leu	gta Val	cgc Arg	ggc Gly	tcc Ser 415	1247
gcg Ala	gct Ala	aac Asn	tcc Ser 420	gac Asp	ggc Gly	gcg Ala	tcg Ser	aac Asn 425	ggt Gly	ctg Leu	tcg Ser	gcg Ala	ccg Pro	aac Asn 430	ggc Gly	1295
ccc Pro	tcc Ser	cag Gln 435	gaa Glu	cgc Arg	gtc Val	atc Ile	cac His	cag Gln 440	gcc Ala	ctc Leu	gcg Ala	aac Asn 445	gcg Ala	aaa Lys	ctc Leu	1343
acc Thr	ccc Pro 450	gcc Ala	gat Asp	gtc Val	gac Asp	gcg Ala 455	gtc Val	gag Glu	gcg Ala	cac His	ggc Gly 460	acc Thr	ggc Gly	acc Thr	cgc Arg	1391
ctc Leu	ggc Gly 465	gac Asp	ccc Pro	atc Ile	gag Glu	gcg Ala 470	cag Gln	gcg Ala	ctg Leu	ctc Leu	gcg Ala 475	acg Thr	tac Tyr	gga Gly	cag Gln	1439
gac Asp 480	cgg Arg	gcg Ala	acg Thr	ccc Pro	ctg Leu 485	ctg Leu	ctc Leu	ggc Gly	tcg Ser 490	ctg Leu	aag Lys	tcg Ser	aac Asn	atc Ile	ggg Gly 495	1487
cac His	gcc Ala	cag Gln	gcc Ala 500	gcg Ala	tca Ser	ggg Gly	gtc Val	gcc Ala 505	ggg Gly	atc Ile	atc Ile	aag Lys	atg Met	gtg Val 510	cag Gln	1535
gcc Ala	atc Ile	cgg Arg	cac His 515	ggg Gly	gaa Glu	ctg Leu	ccg Pro	ccg Pro 520	aca Thr	ctg Leu	cac His	gcg Ala 525	gac Asp	gag Glu	ccg Pro	1583
tcg Ser	ccg Pro 530	cac His	gtc Val	gac Asp	tgg Trp	acg Thr	gcc Ala 535	ggt Gly	gcc Ala	gtc Val	gag Glu	ctc Leu 540	ctg Leu	acg Thr	tcg Ser	1631
gcc Ala	cgg Arg 545	ccg Pro	tgg Trp	ccg Pro	ggg Gly	acc Thr 550	ggt Gly	cgc Arg	ccg Pro	cgc Arg	cgc Arg 555	gct Ala	gcc Ala	gtc Val	tcg Ser	1679
tcg Ser 560	ttc Phe	ggc Gly	gtg Val	agc Ser	ggc Gly 565	acg Thr	aac Asn	gcc Ala	cac His	atc Ile 570	atc Ile	ctt Leu	gag Glu	gca Ala	gga Gly 575	1727

ccg gtc aaa acg gga ccg gtc gag gca gga gcg atc gag gca gga ccg	1775
Pro Val Lys Thr Gly Pro Val Glu Ala Gly Ala Ile Glu Ala Gly Pro	
580 585 590	
gtc gaa gta gga ccg gtc gag gct gga ccg ctc ccc gcg gcg ccg ccg	1823
Val Glu Val Gly Pro Val Glu Ala Gly Pro Leu Pro Ala Ala Pro Pro	
595 600 605	
tca gca ccg ggc gaa gac ctt ccg ctg ctc gtg tcg gcg cgt tcc ccg	1871
Ser Ala Pro Gly Glu Asp Leu Pro Leu Leu Val Ser Ala Arg Ser Pro	
610 615 620	
gag gca ctc gac gag cag atc ggg cgc ctg cgc gcc tat ctc gac acc	1919
Glu Ala Leu Asp Glu Gln Ile Gly Arg Leu Arg Ala Tyr Leu Asp Thr	
625 630 635	
ggc ccg ggc gtc gac cgg gcg gcc gtg gcg cag aca ctg gcc cgg cgt	1967
Gly Pro Gly Val Asp Arg Ala Ala Val Ala Gln Thr Leu Ala Arg Arg	
640 645 650 655	
acg cac ttc acc cac cgg gcc gta ctg ctc ggg gac acc gtc atc ggc	2015
Thr His Phe Thr His Arg Ala Val Leu Leu Gly Asp Thr Val Ile Gly	
660 665 670	
gct ccc ccc gcg gac cag gcc gac gaa ctc gtc ttc gtc tac tcc ggt	2063
Ala Pro Pro Ala Asp Gln Ala Asp Glu Leu Val Phe Val Tyr Ser Gly	
675 680 685	
cag ggc acc cag cat ccc gcg atg ggc gag cag cta gcc gcc gcg ttc	2111
Gln Gly Thr Gln His Pro Ala Met Gly Glu Gln Leu Ala Ala Ala Phe	
690 695 700	
ccc gtc ttc gcg cgg atc cat cag cag gtg tgg gac ctg ctc gat gtg	2159
Pro Val Phe Ala Arg Ile His Gln Gln Val Trp Asp Leu Leu Asp Val	
705 710 715	
ccc gat ctg gag gtg aac gag acc ggt tac gcc cag ccg gcc ctg ttc	2207
Pro Asp Leu Glu Val Asn Glu Thr Gly Tyr Ala Gln Pro Ala Leu Phe	
720 725 730 735	
gca atg cag gtg gct ctg ttc ggg ctg ctg gaa tcg tgg ggt gta cga	2255
Ala Met Gln Val Ala Leu Phe Gly Leu Leu Glu Ser Trp Gly Val Arg	
740 745 750	
ccg gac gcg gtg atc ggc cat tcg gtg ggt gag ctt gcg gct gcg tat	2303
Pro Asp Ala Val Ile Gly His Ser Val Gly Glu Leu Ala Ala Ala Tyr	
755 760 765	
gtg tcc ggg gtg tgg tcg ttg gag gat gcc tgc act ttg gtg tcg gcg	2351
Val Ser Gly Val Trp Ser Leu Glu Asp Ala Cys Thr Leu Val Ser Ala	
770 775 780	
cgg gct cgt ctg atg cag gct ctg ccc gcg ggt ggg gtg atg gtc gct	2399
Arg Ala Arg Leu Met Gln Ala Leu Pro Ala Gly Gly Val Met Val Ala	
785 790 795	

gtc ccg gtc tcg gag gat gag gcc cgg gcc gtg ctg ggt gag ggt gtg	2447
Val Pro Val Ser Glu Asp Glu Ala Arg Ala Val Leu Gly Glu Gly Val	
800 805 810 815	
gag atc gcc gcg gtc aac ggc ccg tcg tcg gtg gtt ctc tcc ggt gat	2495
Glu Ile Ala Ala Val Asn Gly Pro Ser Val Val Leu Ser Gly Asp	
820 825 830	
gag gcc gcc gtg ctg cag gcc gcg gag ggg ctg ggg aag tgg acg cgg	2543
Glu Ala Ala Val Leu Gln Ala Ala Glu Gly Leu Gly Lys Trp Thr Arg	
835 840 845	
ctg gcg acc agc cac gcg ttc cat tcc gcc cgt atg gaa ccc atg ctg	2591
Leu Ala Thr Ser His Ala Phe His Ser Ala Arg Met Glu Pro Met Leu	
850 855 860	
gag gag ttc cgg gcg gtc gcc gaa ggc ctg acc tac cgg acg ccg cag	2639
Glu Glu Phe Arg Ala Val Ala Glu Gly Leu Thr Tyr Arg Thr Pro Gln	
865 870 875	
gtc tcc atg gcc gtt ggt gat cag gtg acc acc gct gag tac tgg gtg	2687
Val Ser Met Ala Val Gly Asp Gln Val Thr Thr Ala Glu Tyr Trp Val	
880 885 890 895	
cgg cag gtc cgg gac acg gtc cgg ttc ggc gag cag gtg gcc tcg tac	2735
Arg Gln Val Arg Asp Thr Val Arg Phe Gly Glu Gln Val Ala Ser Tyr	
900 905 910	
gag gac gcc gtg ttc gtc gag ctg ggt gcc gac cgg tca ctg gcc cgc	2783
Glu Asp Ala Val Phe Val Glu Leu Gly Ala Asp Arg Ser Leu Ala Arg	
915 920 925	
ctg gtc gac ggt gtc gcg atg ctg cac ggc gac cac gaa atc cag gcc	2831
Leu Val Asp Gly Val Ala Met Leu His Gly Asp His Glu Ile Gln Ala	
930 935 940	
gcg atc ggc gcc ctg gcc cac ctg tat gtc aac ggc gtc acg gtc gac	2879
Ala Ile Gly Ala Leu Ala His Leu Tyr Val Asn Gly Val Thr Val Asp	
945 950 955	
tgg ccc gcg ctc ctg ggc gat gct ccg gca aca cgg gtg ctg gac ctt	2927
Trp Pro Ala Leu Leu Gly Asp Ala Pro Ala Thr Arg Val Leu Asp Leu	
960 965 970 975	
ccg aca tac gcc ttc cag cac cag cgc tac tgg ctc gag tcg gct ccc	2975
Pro Thr Tyr Ala Phe Gln His Gln Arg Tyr Trp Leu Glu Ser Ala Pro	
980 985 990	
ccg gcc acg gcc gac tcg ggc cac ccc gtc ctc ggc acc gga gtc gcc	3023
Pro Ala Thr Ala Asp Ser Gly His Pro Val Leu Gly Thr Gly Val Ala	
995 1000 1005	
gtc gcc ggg tcg ccg ggc cgg gtg ttc acg ggt ccc gtg ccc gcc ggt	3071
Val Ala Gly Ser Pro Gly Arg Val Phe Thr Gly Pro Val Pro Ala Gly	
1010 1015 1020	

"02280" SE04660

gcg gac cgc gcg gtg ttc atc gcc gaa ctg gcg ctc gcc gcc gcc gac	3119
Ala Asp Arg Ala Val Phe Ile Ala Glu Leu Ala Leu Ala Ala Ala Asp	
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gcc acc gac tgc gcc acg gtc gaa cag ctc gac gtc acc tcc gtg ccc	3167
Ala Thr Asp Cys Ala Thr Val Glu Gln Leu Asp Val Thr Ser Val Pro	
1040 1045 1050 1055	
ggc gga tcc gcc cgc ggc agg gcc acc gcg cag acc tgg gtc gat gaa	3215
Gly Gly Ser Ala Arg Gly Arg Ala Thr Ala Gln Thr Trp Val Asp Glu	
1060 1065 1070	
ccc gcc gcc gac ggg cgg cgc cgc ttc acc gtc cac acc cgc gtc ggc	3263
Pro Ala Ala Asp Gly Arg Arg Arg Phe Thr Val His Thr Arg Val Gly	
1075 1080 1085	
gac gcc ccg tgg acg ctg cac gcc gag ggg gtt ctc cgc ccc ggc cgc	3311
Asp Ala Pro Trp Thr Leu His Ala Glu Gly Val Leu Arg Pro Gly Arg	
1090 1095 1100	
gtg ccc cag ccc gaa gcc gtc gac acc gcc tgg ccc ccg ccg ggc gcg	3359
Val Pro Gln Pro Glu Ala Val Asp Thr Ala Trp Pro Pro Pro Gly Ala	
1105 1110 1115	
gtg ccc gcg gac ggg ctg ccc ggg gcg tgg cga cgc gcg gac cag gtc	3407
Val Pro Ala Asp Gly Leu Pro Gly Ala Trp Arg Arg Ala Asp Gln Val	
1120 1125 1130 1135	
ttc gtc gaa gcc gaa gtc gac agc cct gac ggc ttc gtg gca cac ccc	3455
Phe Val Glu Ala Glu Val Asp Ser Pro Asp Gly Phe Val Ala His Pro	
1140 1145 1150	
gac ctg ctc gac gcg gtc ttc tcc gcg gtc ggc gac ggg agc cgc cag	3503
Asp Leu Leu Asp Ala Val Phe Ser Ala Val Gly Asp Gly Ser Arg Gln	
1155 1160 1165	
ccg acc gga tgg cgc gac ctc gcg gtg cac gcg tcg gac gcc acc gtg	3551
Pro Thr Gly Trp Arg Asp Leu Ala Val His Ala Ser Asp Ala Thr Val	
1170 1175 1180	
ctg cgc gcc tgc ctc acc cgc cgc gac agt ggt gtc gtg gag ctc gcc	3599
Leu Arg Ala Cys Leu Thr Arg Arg Asp Ser Gly Val Val Glu Leu Ala	
1185 1190 1195	
gcc ttc gac ggt gcc gga atg ccg gtg ctc acc gcg gag tcg gtg acg	3647
Ala Phe Asp Gly Ala Gly Met Pro Val Leu Thr Ala Glu Ser Val Thr	
1200 1205 1210 1215	
ctg ggc gag gtc gcg tcg gca ggc gga tcc gac gag tcg gac ggt ctg	3695
Leu Gly Glu Val Ala Ser Ala Gly Gly Ser Asp Glu Ser Asp Gly Leu	
1220 1225 1230	
ctt cgg ctt gag tgg ttg ccg gtg gcg gag gcc cac tac gac ggt gcc	3743
Leu Arg Leu Glu Trp Leu Pro Val Ala Glu Ala His Tyr Asp Gly Ala	
1235 1240 1245	

0940316 082700

gac gag ctg ccc gag ggc tac acc ctc atc acc gcc aca cac ccc gac 3791  
 Asp Glu Leu Pro Glu Gly Tyr Thr Leu Ile Thr Ala Thr His Pro Asp  
 1250 1255 1260

gac ccc gac gac ccc acc aac ccc cac aac aca ccc aca cgc acc cac 3839  
 Asp Pro Asp Asp Pro Thr Asn Pro His Asn Thr Pro Thr Arg Thr His  
 1265 1270 1275

aca caa acc aca cgc gtc ctc acc gcc ctc caa cac cac ctc atc acc 3887  
 Thr Gln Thr Thr Arg Val Leu Thr Ala Leu Gln His His Leu Ile Thr  
 1280 1285 1290 1295

acc aac cac acc ctc atc gtc cac acc acc acc gac ccc cca ggc gcc 3935  
 Thr Asn His Thr Leu Ile Val His Thr Thr Asp Pro Pro Gly Ala  
 1300 1305 1310

gcc gtc acc ggc ctc acc cgc acc gca caa aac gaa cac ccc ggc cgc 3983  
 Ala Val Thr Gly Leu Thr Arg Thr Ala Gln Asn Glu His Pro Gly Arg  
 1315 1320 1325

atc cac ctc atc gaa acc cac cac ccc cac acc cca ctc ccc ctc acc 4031  
 Ile His Leu Ile Glu Thr His His Pro His Thr Pro Leu Pro Leu Thr  
 1330 1335 1340

caa ctc acc acc ctc cac caa ccc cac cta cgc ctc acc aac aac acc 4079  
 Gln Leu Thr Thr Leu His Gln Pro His Leu Arg Leu Thr Asn Asn Thr  
 1345 1350 1355

ctc cac acc ccc cac ctc acc ccc atc acc acc cac cac aac acc acc 4127  
 Leu His Thr Pro His Leu Thr Pro Ile Thr Thr His His Asn Thr Thr  
 1360 1365 1370 1375

aca acc acc ccc aac acc cca ccc ctc aac ccc aac cac gcc atc ctc 4175  
 Thr Thr Thr Pro Asn Thr Pro Pro Leu Asn Pro Asn His Ala Ile Leu  
 1380 1385 1390

atc acc ggc ggc tcc ggc acc ctc gcc ggc atc ctc gcc cgc cac ctc 4223  
 Ile Thr Gly Gly Ser Gly Thr Leu Ala Gly Ile Leu Ala Arg His Leu  
 1395 1400 1405

aac cac ccc cac acc tac ctc ctc tcc cgc aca cca cca ccc ccc acc 4271  
 Asn His Pro His Thr Tyr Leu Leu Ser Arg Thr Pro Pro Pro Pro Thr  
 1410 1415 1420

aca ccc ggc acc cac atc ccc tgc gac ctc acc gac ccc acc caa atc 4319  
 Thr Pro Gly Thr His Ile Pro Cys Asp Leu Thr Asp Pro Thr Gln Ile  
 1425 1430 1435

acc caa gcc ctc acc cac ata cca caa ccc ctc acc ggc atc ttc cac 4367  
 Thr Gln Ala Leu Thr His Ile Pro Gln Pro Leu Thr Gly Ile Phe His  
 1440 1445 1450 1455

acc gcc gcc acc ctc gac gac gcc acc ctc acc aac ctc acc ccc caa 4415  
 Thr Ala Ala Thr Leu Asp Asp Ala Thr Leu Thr Asn Leu Thr Pro Gln  
 1460 1465 1470

"02250" 9FE04650



cac ctc acc acc acc ctc caa ccc aaa gcc gac gcc gcc tgg cac ctc 4463  
 His Leu Thr Thr Thr Leu Gln Pro Lys Ala Asp Ala Ala Trp His Leu  
                   1475                                  1480                                  1485

cac cac cac acc caa aac caa ccc ctc acc cac ttc gtc ctc tac tcc 4511  
 His His His Thr Gln Asn Gln Pro Leu Thr His Phe Val Leu Tyr Ser  
                   1490                                  1495                                  1500

agc gcc gcc gcc acc ctc ggc agc ccc ggc caa gcc aac tac gcc gcc 4559  
 Ser Ala Ala Ala Thr Leu Gly Ser Pro Gly Gln Ala Asn Tyr Ala Ala  
                   1505                                  1510                                  1515

gcc aac gcc ttc ctc gac gcc ctc gcc acc cac cgc cac acc caa gga 4607  
 Ala Asn Ala Phe Leu Asp Ala Leu Ala Thr His Arg His Thr Gln Gly  
                   1520                                  1525                                  1530                                  1535

caa ccc gcc acc acc atc gcc tgg ggc atg tgg cac acc acc acc aca 4655  
 Gln Pro Ala Thr Thr Ile Ala Trp Gly Met Trp His Thr Thr Thr Thr  
                                   1540                                  1545                                  1550

ctc acc agc caa ctc acc gac agc gac cgc gac cgc atc cgc cgc ggc 4703  
 Leu Thr Ser Gln Leu Thr Asp Ser Asp Arg Asp Arg Ile Arg Arg Gly  
                                   1555                                  1560                                  1565

ggc ttc ctg ccg atc tcg gac gac gag ggc atg c 4737  
 Gly Phe Leu Pro Ile Ser Asp Asp Glu Gly Met  
                   1570                                  1575

<210> 31

<211> 1578

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic PKS  
 synthase fragment

<400> 31

Met Arg Leu Tyr Glu Ala Ala Arg Arg Thr Gly Ser Pro Val Val Val  
   1                  5                                  10                                  15

Ala Ala Ala Leu Asp Asp Ala Pro Asp Val Pro Leu Leu Arg Gly Leu  
                   20                                  25                                  30

Arg Arg Thr Thr Val Arg Arg Ala Ala Val Arg Glu Arg Ser Leu Ala  
                   35                                  40                                  45

Asp Arg Ser Pro Cys Cys Pro Thr Thr Ser Ala Pro Thr Pro Pro Ser  
                   50                                  55                                  60

Arg Ser Ser Trp Asn Ser Thr Ala Thr Val Leu Gly His Leu Gly Ala  
                   65                                  70                                  75                                  80

Glu Asp Ile Pro Ala Thr Thr Thr Phe Lys Glu Leu Gly Ile Asp Ser  
                   85                                  90                                  95

Leu Thr Ala Val Gln Leu Arg Asn Ala Leu Thr Thr Ala Thr Gly Val  
 100 105 110  
 Arg Leu Asn Ala Thr Ala Val Phe Asp Phe Pro Thr Pro Arg Ala Leu  
 115 120 125  
 Ala Ala Arg Leu Gly Asp Glu Leu Ala Gly Thr Arg Ala Pro Val Ala  
 130 135 140  
 Ala Arg Thr Ala Ala Thr Ala Ala Ala His Asp Glu Pro Leu Ala Ile  
 145 150 155 160  
 Val Gly Met Ala Cys Arg Leu Pro Gly Gly Val Ala Ser Pro Gln Glu  
 165 170 175  
 Leu Trp Arg Leu Val Ala Ser Gly Thr Asp Ala Ile Thr Glu Phe Pro  
 180 185 190  
 Ala Asp Arg Gly Trp Asp Val Asp Ala Leu Tyr Asp Pro Asp Pro Asp  
 195 200 205  
 Ala Ile Gly Lys Thr Phe Val Arg His Gly Gly Phe Leu Asp Gly Ala  
 210 215 220  
 Thr Gly Phe Asp Ala Ala Phe Phe Gly Ile Ser Pro Arg Glu Ala Leu  
 225 230 235 240  
 Ala Met Asp Pro Gln Gln Arg Val Leu Leu Glu Thr Ser Trp Glu Ala  
 245 250 255  
 Phe Glu Ser Ala Gly Ile Thr Pro Asp Ala Ala Arg Gly Ser Asp Thr  
 260 265 270  
 Gly Val Phe Ile Gly Ala Phe Ser Tyr Gly Tyr Gly Thr Gly Ala Asp  
 275 280 285  
 Thr Asn Gly Phe Gly Ala Thr Gly Ser Gln Thr Ser Val Leu Ser Gly  
 290 295 300  
 Arg Leu Ser Tyr Phe Tyr Gly Leu Glu Gly Pro Ser Val Thr Val Asp  
 305 310 315 320  
 Thr Ala Cys Ser Ser Ser Leu Val Ala Leu His Gln Ala Gly Gln Ser  
 325 330 335  
 Leu Arg Ser Gly Glu Cys Ser Leu Ala Leu Val Gly Gly Val Thr Val  
 340 345 350  
 Met Ala Ser Pro Gly Gly Phe Val Glu Phe Ser Arg Gln Arg Gly Leu  
 355 360 365  
 Ala Pro Asp Gly Arg Ala Lys Ala Phe Gly Ala Gly Ala Asp Gly Thr  
 370 375 380  
 Ser Phe Ala Glu Gly Ala Gly Ala Leu Val Val Glu Arg Leu Ser Asp  
 385 390 395 400

00940376 082701  
 10/22/80 9:20:50

Ala Glu Arg His Gly His Thr Val Leu Ala Leu Val Arg Gly Ser Ala  
405 410 415

Ala Asn Ser Asp Gly Ala Ser Asn Gly Leu Ser Ala Pro Asn Gly Pro  
420 425 430

Ser Gln Glu Arg Val Ile His Gln Ala Leu Ala Asn Ala Lys Leu Thr  
435 440 445

Pro Ala Asp Val Asp Ala Val Glu Ala His Gly Thr Gly Thr Arg Leu  
450 455 460

Gly Asp Pro Ile Glu Ala Gln Ala Leu Leu Ala Thr Tyr Gly Gln Asp  
465 470 475 480

Arg Ala Thr Pro Leu Leu Leu Gly Ser Leu Lys Ser Asn Ile Gly His  
485 490 495

Ala Gln Ala Ala Ser Gly Val Ala Gly Ile Ile Lys Met Val Gln Ala  
500 505 510

Ile Arg His Gly Glu Leu Pro Pro Thr Leu His Ala Asp Glu Pro Ser  
515 520 525

Pro His Val Asp Trp Thr Ala Gly Ala Val Glu Leu Leu Thr Ser Ala  
530 535 540

Arg Pro Trp Pro Gly Thr Gly Arg Pro Arg Arg Ala Ala Val Ser Ser  
545 550 555 560

Phe Gly Val Ser Gly Thr Asn Ala His Ile Ile Leu Glu Ala Gly Pro  
565 570 575

Val Lys Thr Gly Pro Val Glu Ala Gly Ala Ile Glu Ala Gly Pro Val  
580 585 590

Glu Val Gly Pro Val Glu Ala Gly Pro Leu Pro Ala Ala Pro Pro Ser  
595 600 605

Ala Pro Gly Glu Asp Leu Pro Leu Leu Val Ser Ala Arg Ser Pro Glu  
610 615 620

Ala Leu Asp Glu Gln Ile Gly Arg Leu Arg Ala Tyr Leu Asp Thr Gly  
625 630 635 640

Pro Gly Val Asp Arg Ala Ala Val Ala Gln Thr Leu Ala Arg Arg Thr  
645 650 655

His Phe Thr His Arg Ala Val Leu Leu Gly Asp Thr Val Ile Gly Ala  
660 665 670

Pro Pro Ala Asp Gln Ala Asp Glu Leu Val Phe Val Tyr Ser Gly Gln  
675 680 685

Gly Thr Gln His Pro Ala Met Gly Glu Gln Leu Ala Ala Ala Phe Pro  
690 695 700

00940316 082701  
10/28/91 09:04:50

Val Phe Ala Arg Ile His Gln Gln Val Trp Asp Leu Leu Asp Val Pro  
 705 710 715 720  
 Asp Leu Glu Val Asn Glu Thr Gly Tyr Ala Gln Pro Ala Leu Phe Ala  
 725 730 735  
 Met Gln Val Ala Leu Phe Gly Leu Leu Glu Ser Trp Gly Val Arg Pro  
 740 745 750  
 Asp Ala Val Ile Gly His Ser Val Gly Glu Leu Ala Ala Ala Tyr Val  
 755 760 765  
 Ser Gly Val Trp Ser Leu Glu Asp Ala Cys Thr Leu Val Ser Ala Arg  
 770 775 780  
 Ala Arg Leu Met Gln Ala Leu Pro Ala Gly Gly Val Met Val Ala Val  
 785 790 795 800  
 Pro Val Ser Glu Asp Glu Ala Arg Ala Val Leu Gly Glu Gly Val Glu  
 805 810 815  
 Ile Ala Ala Val Asn Gly Pro Ser Ser Val Val Leu Ser Gly Asp Glu  
 820 825 830  
 Ala Ala Val Leu Gln Ala Ala Glu Gly Leu Gly Lys Trp Thr Arg Leu  
 835 840 845  
 Ala Thr Ser His Ala Phe His Ser Ala Arg Met Glu Pro Met Leu Glu  
 850 855 860  
 Glu Phe Arg Ala Val Ala Glu Gly Leu Thr Tyr Arg Thr Pro Gln Val  
 865 870 875 880  
 Ser Met Ala Val Gly Asp Gln Val Thr Thr Ala Glu Tyr Trp Val Arg  
 885 890 895  
 Gln Val Arg Asp Thr Val Arg Phe Gly Glu Gln Val Ala Ser Tyr Glu  
 900 905 910  
 Asp Ala Val Phe Val Glu Leu Gly Ala Asp Arg Ser Leu Ala Arg Leu  
 915 920 925  
 Val Asp Gly Val Ala Met Leu His Gly Asp His Glu Ile Gln Ala Ala  
 930 935 940  
 Ile Gly Ala Leu Ala His Leu Tyr Val Asn Gly Val Thr Val Asp Trp  
 945 950 955 960  
 Pro Ala Leu Leu Gly Asp Ala Pro Ala Thr Arg Val Leu Asp Leu Pro  
 965 970 975  
 Thr Tyr Ala Phe Gln His Gln Arg Tyr Trp Leu Glu Ser Ala Pro Pro  
 980 985 990  
 Ala Thr Ala Asp Ser Gly His Pro Val Leu Gly Thr Gly Val Ala Val  
 995 1000 1005

0940315 082701  
 10/22/80 9:40:50

Ala Gly Ser Pro Gly Arg Val Phe Thr Gly Pro Val Pro Ala Gly Ala  
 1010 1015 1020  
 Asp Arg Ala Val Phe Ile Ala Glu Leu Ala Leu Ala Ala Ala Asp Ala  
 025 1030 1035 104  
 Thr Asp Cys Ala Thr Val Glu Gln Leu Asp Val Thr Ser Val Pro Gly  
 1045 1050 1055  
 Gly Ser Ala Arg Gly Arg Ala Thr Ala Gln Thr Trp Val Asp Glu Pro  
 1060 1065 1070  
 Ala Ala Asp Gly Arg Arg Arg Phe Thr Val His Thr Arg Val Gly Asp  
 1075 1080 1085  
 Ala Pro Trp Thr Leu His Ala Glu Gly Val Leu Arg Pro Gly Arg Val  
 1090 1095 1100  
 Pro Gln Pro Glu Ala Val Asp Thr Ala Trp Pro Pro Pro Gly Ala Val  
 105 1110 1115 112  
 Pro Ala Asp Gly Leu Pro Gly Ala Trp Arg Arg Ala Asp Gln Val Phe  
 1125 1130 1135  
 Val Glu Ala Glu Val Asp Ser Pro Asp Gly Phe Val Ala His Pro Asp  
 1140 1145 1150  
 Leu Leu Asp Ala Val Phe Ser Ala Val Gly Asp Gly Ser Arg Gln Pro  
 1155 1160 1165  
 Thr Gly Trp Arg Asp Leu Ala Val His Ala Ser Asp Ala Thr Val Leu  
 1170 1175 1180  
 Arg Ala Cys Leu Thr Arg Arg Asp Ser Gly Val Val Glu Leu Ala Ala  
 185 1190 1195 120  
 Phe Asp Gly Ala Gly Met Pro Val Leu Thr Ala Glu Ser Val Thr Leu  
 1205 1210 1215  
 Gly Glu Val Ala Ser Ala Gly Gly Ser Asp Glu Ser Asp Gly Leu Leu  
 1220 1225 1230  
 Arg Leu Glu Trp Leu Pro Val Ala Glu Ala His Tyr Asp Gly Ala Asp  
 1235 1240 1245  
 Glu Leu Pro Glu Gly Tyr Thr Leu Ile Thr Ala Thr His Pro Asp Asp  
 1250 1255 1260  
 Pro Asp Asp Pro Thr Asn Pro His Asn Thr Pro Thr Arg Thr His Thr  
 265 1270 1275 128  
 Gln Thr Thr Arg Val Leu Thr Ala Leu Gln His His Leu Ile Thr Thr  
 1285 1290 1295  
 Asn His Thr Leu Ile Val His Thr Thr Thr Asp Pro Pro Gly Ala Ala  
 1300 1305 1310

0940346  
 092704  
 092280  
 09204660

Val Thr Gly Leu Thr Arg Thr Ala Gln Asn Glu His Pro Gly Arg Ile  
 1315 1320 1325

His Leu Ile Glu Thr His His Pro His Thr Pro Leu Pro Leu Thr Gln  
 1330 1335 1340

Leu Thr Thr Leu His Gln Pro His Leu Arg Leu Thr Asn Asn Thr Leu  
 345 1350 1355 136

His Thr Pro His Leu Thr Pro Ile Thr Thr His His Asn Thr Thr Thr  
 1365 1370 1375

Thr Thr Pro Asn Thr Pro Pro Leu Asn Pro Asn His Ala Ile Leu Ile  
 1380 1385 1390

Thr Gly Gly Ser Gly Thr Leu Ala Gly Ile Leu Ala Arg His Leu Asn  
 1395 1400 1405

His Pro His Thr Tyr Leu Leu Ser Arg Thr Pro Pro Pro Pro Thr Thr  
 1410 1415 1420

Pro Gly Thr His Ile Pro Cys Asp Leu Thr Asp Pro Thr Gln Ile Thr  
 425 1430 1435 144

Gln Ala Leu Thr His Ile Pro Gln Pro Leu Thr Gly Ile Phe His Thr  
 1445 1450 1455

Ala Ala Thr Leu Asp Asp Ala Thr Leu Thr Asn Leu Thr Pro Gln His  
 1460 1465 1470

Leu Thr Thr Thr Leu Gln Pro Lys Ala Asp Ala Ala Trp His Leu His  
 1475 1480 1485

His His Thr Gln Asn Gln Pro Leu Thr His Phe Val Leu Tyr Ser Ser  
 1490 1495 1500

Ala Ala Ala Thr Leu Gly Ser Pro Gly Gln Ala Asn Tyr Ala Ala Ala  
 505 1510 1515 152

Asn Ala Phe Leu Asp Ala Leu Ala Thr His Arg His Thr Gln Gly Gln  
 1525 1530 1535

Pro Ala Thr Thr Ile Ala Trp Gly Met Trp His Thr Thr Thr Thr Leu  
 1540 1545 1550

Thr Ser Gln Leu Thr Asp Ser Asp Arg Asp Arg Ile Arg Arg Gly Gly  
 1555 1560 1565

Phe Leu Pro Ile Ser Asp Asp Glu Gly Met  
 1570 1575

<210> 32

<211> 4818

<212> DNA

<213> Artificial Sequence

<220>

FOXP280" 9FE04660

<223> Description of Artificial Sequence: DNA encoding synthetic  
PKS synthase fragment

<220>

<221> CDS

<222> (3)..(4817)

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Val Ala Ala Ala Leu Asp Asp Ala Pro Asp Val Pro Leu Leu Arg Gly	
20 25 30	
ctg cgg cgt acg acc gtc cgg cgt gcc gcc gtc cgg gaa cgc tct ctc	143
Leu Arg Arg Thr Thr Val Arg Arg Ala Ala Val Arg Glu Arg Ser Leu	
35 40 45	
gcc gac cgc tcg ccg tgc tgc ccg acg acg agc gcg ccg acg cct ccc	191
Ala Asp Arg Ser Pro Cys Cys Pro Thr Thr Ser Ala Pro Thr Pro Pro	
50 55 60	
tcg cgt tcg tcc tgg aac agc acc gcc acc gtg ctc ggc cac ctg ggc	239
Ser Arg Ser Ser Trp Asn Ser Thr Ala Thr Val Leu Gly His Leu Gly	
65 70 75	
gcc gaa gac atc ccg gcg acg acg acg ttc aag gaa ctc ggc atc gac	287
Ala Glu Asp Ile Pro Ala Thr Thr Thr Phe Lys Glu Leu Gly Ile Asp	
80 85 90 95	
tcg ctc acc gcg gtc cag ctg cgc aac gcg ctg acc acg gcg acc ggc	335
Ser Leu Thr Ala Val Gln Leu Arg Asn Ala Leu Thr Thr Ala Thr Gly	
100 105 110	
gta cgc ctc aac gcc aca gcg gtc ttc gac ttt ccg acg ccg cgc gcg	383
Val Arg Leu Asn Ala Thr Ala Val Phe Asp Phe Pro Thr Pro Arg Ala	
115 120 125	
ctc gcc gcg aga ctc ggc gac gag ctg gcc ggt acc cgc gcg ccc gtc	431
Leu Ala Ala Arg Leu Gly Asp Glu Leu Ala Gly Thr Arg Ala Pro Val	
130 135 140	
gcg gcc cgg acc gcg gcc acc gcg gcc gcg cac gac gaa ccg ctg gcg	479
Ala Ala Arg Thr Ala Ala Thr Ala Ala Ala His Asp Glu Pro Leu Ala	
145 150 155	
atc gtg ggc atg gcc tgc cgt ctg ccg ggc ggg gtc gcg tcg cca cag	527
Ile Val Gly Met Ala Cys Arg Leu Pro Gly Gly Val Ala Ser Pro Gln	
160 165 170 175	
gag ctg tgg cgt ctc gtc gcg tcc ggc acc gac gcc atc acg gag ttc	575
Glu Leu Trp Arg Leu Val Ala Ser Gly Thr Asp Ala Ile Thr Glu Phe	
180 185 190	

ccc gcg gac cgc ggc tgg gac gtg gac gcg ctc tac gac ccg gac ccc	623
Pro Ala Asp Arg Gly Trp Asp Val Asp Ala Leu Tyr Asp Pro Asp Pro	
195 200 205	
gac gcg atc ggc aag acc ttc gtc cgg cac ggc ggc ttc ctc gac ggt	671
Asp Ala Ile Gly Lys Thr Phe Val Arg His Gly Gly Phe Leu Asp Gly	
210 215 220	
gcg acc ggc ttc gac gcg gcg ttc ttc ggg atc agc ccg cgc gag gcc	719
Ala Thr Gly Phe Asp Ala Ala Phe Phe Gly Ile Ser Pro Arg Glu Ala	
225 230 235	
ctg gcc atg gac ccg cag caa cgg gtg ctc ctg gag acg tcc tgg gag	767
Leu Ala Met Asp Pro Gln Arg Val Leu Leu Glu Thr Ser Trp Glu	
240 245 250 255	
gcg ttc gaa agc gcg ggc atc acc ccg gac gcg gcg cgg ggc agc gac	815
Ala Phe Glu Ser Ala Gly Ile Thr Pro Asp Ala Ala Arg Gly Ser Asp	
260 265 270	
acc ggc gtg ttc atc ggc gcg ttc tcc tac ggg tac ggc acg ggt gcg	863
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Gly Arg Leu Ser Tyr Phe Tyr Gly Leu Glu Gly Pro Ser Val Thr Val	
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Asp Thr Ala Cys Ser Ser Ser Leu Val Ala Leu His Gln Ala Gly Gln	
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Ser Leu Arg Ser Gly Glu Cys Ser Leu Ala Leu Val Gly Gly Val Thr	
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Val Met Ala Ser Pro Gly Gly Phe Val Glu Phe Ser Arg Gln Arg Gly	
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Leu Ala Pro Asp Gly Arg Ala Lys Ala Phe Gly Ala Gly Ala Asp Gly	
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Thr Ser Phe Ala Glu Gly Ala Gly Ala Leu Val Glu Arg Leu Ser	
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Asp Ala Glu Arg His Gly His Thr Val Leu Ala Leu Val Arg Gly Ser	
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Pro Ser Gln Glu Arg Val Ile His Gln Ala Leu Ala Asn Ala Lys Leu	
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Thr Pro Ala Asp Val Asp Ala Val Glu Ala His Gly Thr Gly Thr Arg	
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Asp Arg Ala Thr Pro Leu Leu Leu Gly Ser Leu Lys Ser Asn Ile Gly	
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His Ala Gln Ala Ala Ser Gly Val Ala Gly Ile Ile Lys Met Val Gln	
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Ala Ile Arg His Gly Glu Leu Pro Pro Thr Leu His Ala Asp Glu Pro	
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Ser Pro His Val Asp Trp Thr Ala Gly Ala Val Glu Leu Leu Thr Ser	
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Pro Val Lys Thr Gly Pro Val Glu Ala Gly Ala Ile Glu Ala Gly Pro	
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Val Glu Val Gly Pro Val Glu Ala Gly Pro Leu Pro Ala Ala Pro Pro	
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Ser Ala Pro Gly Glu Asp Leu Pro Leu Leu Val Ser Ala Arg Ser Pro	
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Glu Ala Leu Asp Glu Gln Ile Gly Arg Leu Arg Ala Tyr Leu Asp Thr	
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Gly His Ser Gln Gly Glu Ile Ala Ala Ala Cys Val Ala Gly Ala Val	
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Ser Leu Arg Asp Ala Ala Arg Ile Val Thr Leu Arg Ser Gln Ala Ile	
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Val Asp Tyr Ala Ser His Thr Pro His Val Glu Leu Ile Arg Asp Glu	
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Trp Leu Ser Thr Val Asp Gly Thr Trp Val Asp Ser Pro Leu Asp Gly	
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Ala Ser Pro Val Leu Leu Gln Ala Met Asp Asp Asp Val Val Thr Val	
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Ala Thr Leu Arg Arg Asp Asp Gly Asp Ala Thr Arg Met Leu Thr Ala	
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ctg gca cag gcc tat gtc cac ggc gtc acc gtc gac tgg ccc gcc atc	2975
Leu Ala Gln Ala Tyr Val His Gly Val Thr Val Asp Trp Pro Ala Ile	
980 985 990	
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Gln His Gln Arg Tyr Trp Leu Glu Ser Ala Pro Pro Ala Thr Ala Asp	
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gtc ttc tcc gcg gtc ggc gac ggg agc cgc cag ccg acc gga tgg cgc 3599  
 Val Phe Ser Ala Val Gly Asp Gly Ser Arg Gln Pro Thr Gly Trp Arg  
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gac ctc gcg gtg cac gcg tcg gac gcc acc gtg ctg cgc gcc tgc ctc 3647  
 Asp Leu Ala Val His Ala Ser Asp Ala Thr Val Leu Arg Ala Cys Leu  
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 Gly Tyr Thr Leu Ile Thr Ala Thr His Pro Asp Asp Pro Asp Asp Pro  
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Val	Leu	Thr	Ala	Leu	Gln	His	His	Leu	Ile	Thr	Thr	Asn	His	Thr	Leu	
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atc	gtc	cac	acc	acc	acc	gac	ccc	cca	ggc	gcc	gcc	gtc	acc	ggc	ctc	4031
Ile	Val	His	Thr	Thr	Thr	Asp	Pro	Pro	Gly	Ala	Ala	Val	Thr	Gly	Leu	
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Thr	Arg	Thr	Ala	Gln	Asn	Glu	His	Pro	Gly	Arg	Ile	His	Leu	Ile	Glu	
			1345			1350					1355					
acc	cac	cac	ccc	cac	acc	cca	ctc	ccc	ctc	acc	caa	ctc	acc	acc	ctc	4127
Thr	His	His	Pro	His	Thr	Pro	Leu	Pro	Leu	Thr	Gln	Leu	Thr	Thr	Leu	
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cac	caa	ccc	cac	cta	cgc	ctc	acc	aac	aac	acc	ctc	cac	acc	ccc	cac	4175
His	Gln	Pro	His	Leu	Arg	Leu	Thr	Asn	Asn	Thr	Leu	His	Thr	Pro	His	
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ctc	acc	ccc	atc	acc	acc	cac	cac	aac	acc	acc	aca	acc	acc	ccc	aac	4223
Leu	Thr	Pro	Ile	Thr	Thr	His	His	Asn	Thr	Thr	Thr	Thr	Thr	Pro	Asn	
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Thr	Pro	Pro	Leu	Asn	Pro	Asn	His	Ala	Ile	Leu	Ile	Thr	Gly	Gly	Ser	
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Gly	Thr	Leu	Ala	Gly	Ile	Leu	Ala	Arg	His	Leu	Asn	His	Pro	His	Thr	
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Tyr	Leu	Leu	Ser	Arg	Thr	Pro	Pro	Pro	Pro	Thr	Thr	Pro	Gly	Thr	His	
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Ile	Pro	Cys	Asp	Leu	Thr	Asp	Pro	Thr	Gln	Ile	Thr	Gln	Ala	Leu	Thr	
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cac	ata	cca	caa	ccc	ctc	acc	ggc	atc	ttc	cac	acc	gcc	gcc	acc	ctc	4463
His	Ile	Pro	Gln	Pro	Leu	Thr	Gly	Ile	Phe	His	Thr	Ala	Ala	Thr	Leu	
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gac	gac	gcc	acc	ctc	acc	aac	ctc	acc	ccc	caa	cac	ctc	acc	acc	acc	4511
Asp	Asp	Ala	Thr	Leu	Thr	Asn	Leu	Thr	Pro	Gln	His	Leu	Thr	Thr	Thr	
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ctc	caa	ccc	aaa	gcc	gac	gcc	gcc	tgg	cac	ctc	cac	cac	cac	acc	caa	4559
Leu	Gln	Pro	Lys	Ala	Asp	Ala	Ala	Trp	His	Leu	His	His	His	Thr	Gln	

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 synthase fragment

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Arg Arg Thr Thr Val Arg Arg Ala Ala Val Arg Glu Arg Ser Leu Ala  
                   35                  40                  45

Asp Arg Ser Pro Cys Cys Pro Thr Thr Ser Ala Pro Thr Pro Pro Ser  
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Arg Ser Ser Trp Asn Ser Thr Ala Thr Val Leu Gly His Leu Gly Ala  
                   65                  70                  75                  80

Glu Asp Ile Pro Ala Thr Thr Thr Phe Lys Glu Leu Gly Ile Asp Ser  
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Leu Thr Ala Val Gln Leu Arg Asn Ala Leu Thr Thr Ala Thr Gly Val  
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Arg Leu Asn Ala Thr Ala Val Phe Asp Phe Pro Thr Pro Arg Ala Leu  
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Ala Ala Arg Leu Gly Asp Glu Leu Ala Gly Thr Arg Ala Pro Val Ala  
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FOI 280 " 97E04560

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Val	Gly	Met	Ala	Cys	Arg	Leu	Pro	Gly	Gly	Val	Ala	Ser	Pro	Gln	Glu
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Ala	Asp	Arg	Gly	Trp	Asp	Val	Asp	Ala	Leu	Tyr	Asp	Pro	Asp	Pro	Asp
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	210					215					220				
Thr	Gly	Phe	Asp	Ala	Ala	Phe	Phe	Gly	Ile	Ser	Pro	Arg	Glu	Ala	Leu
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Ala	Met	Asp	Pro	Gln	Gln	Arg	Val	Leu	Leu	Glu	Thr	Ser	Trp	Glu	Ala
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Phe	Glu	Ser	Ala	Gly	Ile	Thr	Pro	Asp	Ala	Ala	Arg	Gly	Ser	Asp	Thr
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Gly	Val	Phe	Ile	Gly	Ala	Phe	Ser	Tyr	Gly	Tyr	Gly	Thr	Gly	Ala	Asp
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Thr	Asn	Gly	Phe	Gly	Ala	Thr	Gly	Ser	Gln	Thr	Ser	Val	Leu	Ser	Gly
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Thr	Ala	Cys	Ser	Ser	Ser	Leu	Val	Ala	Leu	His	Gln	Ala	Gly	Gln	Ser
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Ser	Phe	Ala	Glu	Gly	Ala	Gly	Ala	Leu	Val	Val	Glu	Arg	Leu	Ser	Asp
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Ser	Gln	Glu	Arg	Val	Ile	His	Gln	Ala	Leu	Ala	Asn	Ala	Lys	Leu	Thr
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 Gly Asp Pro Ile Glu Ala Gln Ala Leu Leu Ala Thr Tyr Gly Gln Asp  
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 Val Lys Thr Gly Pro Val Glu Ala Gly Ala Ile Glu Ala Gly Pro Val  
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 Pro Gly Val Asp Arg Ala Ala Val Ala Gln Thr Leu Ala Arg Arg Thr  
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 Pro Pro Ala Asp Gln Ala Asp Glu Leu Val Phe Val Tyr Ser Gly Gln  
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 Arg Gly Leu Ala Gly Arg Gly Ala Met Ala Ser Val Ala Leu Pro Ala  
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 Pro Ala Ser Thr Val Ile Ala Gly Thr Pro Glu Ala Val Asp His Val  
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 Thr Leu Arg Arg Asp Asp Gly Asp Ala Thr Arg Met Leu Thr Ala Leu  
 965 970 975  
 Ala Gln Ala Tyr Val His Gly Val Thr Val Asp Trp Pro Ala Ile Leu  
 980 985 990  
 Gly Thr Thr Thr Thr Arg Val Leu Asp Leu Pro Thr Tyr Ala Phe Gln  
 995 1000 1005  
 His Gln Arg Tyr Trp Leu Glu Ser Ala Pro Pro Ala Thr Ala Asp Ser  
 1010 1015 1020  
 Gly His Pro Val Leu Gly Thr Gly Val Ala Val Ala Gly Ser Pro Gly  
 1025 1030 1035 1040  
 Arg Val Phe Thr Gly Pro Val Pro Ala Gly Ala Asp Arg Ala Val Phe  
 1045 1050 1055

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Ile Ala Glu Leu Ala Leu Ala Ala Ala Asp Ala Thr Asp Cys Ala Thr  
 1060 1065 1070  
 Val Glu Gln Leu Asp Val Thr Ser Val Pro Gly Gly Ser Ala Arg Gly  
 1075 1080 1085  
 Arg Ala Thr Ala Gln Thr Trp Val Asp Glu Pro Ala Ala Asp Gly Arg  
 1090 1095 1100  
 Arg Arg Phe Thr Val His Thr Arg Val Gly Asp Ala Pro Trp Thr Leu  
 1105 1110 1115 112  
 His Ala Glu Gly Val Leu Arg Pro Gly Arg Val Pro Gln Pro Glu Ala  
 1125 1130 1135  
 Val Asp Thr Ala Trp Pro Pro Pro Gly Ala Val Pro Ala Asp Gly Leu  
 1140 1145 1150  
 Pro Gly Ala Trp Arg Arg Ala Asp Gln Val Phe Val Glu Ala Glu Val  
 1155 1160 1165  
 Asp Ser Pro Asp Gly Phe Val Ala His Pro Asp Leu Leu Asp Ala Val  
 1170 1175 1180  
 Phe Ser Ala Val Gly Asp Gly Ser Arg Gln Pro Thr Gly Trp Arg Asp  
 1185 1190 1195 120  
 Leu Ala Val His Ala Ser Asp Ala Thr Val Leu Arg Ala Cys Leu Thr  
 1205 1210 1215  
 Arg Arg Asp Ser Gly Val Val Glu Leu Ala Ala Phe Asp Gly Ala Gly  
 1220 1225 1230  
 Met Pro Val Leu Thr Ala Glu Ser Val Thr Leu Gly Glu Val Ala Ser  
 1235 1240 1245  
 Ala Gly Gly Ser Asp Glu Ser Asp Gly Leu Leu Arg Leu Glu Trp Leu  
 1250 1255 1260  
 Pro Val Ala Glu Ala His Tyr Asp Gly Ala Asp Glu Leu Pro Glu Gly  
 1265 1270 1275 128  
 Tyr Thr Leu Ile Thr Ala Thr His Pro Asp Asp Pro Asp Asp Pro Thr  
 1285 1290 1295  
 Asn Pro His Asn Thr Pro Thr Arg Thr His Thr Gln Thr Thr Arg Val  
 1300 1305 1310  
 Leu Thr Ala Leu Gln His His Leu Ile Thr Thr Asn His Thr Leu Ile  
 1315 1320 1325  
 Val His Thr Thr Thr Asp Pro Pro Gly Ala Ala Val Thr Gly Leu Thr  
 1330 1335 1340  
 Arg Thr Ala Gln Asn Glu His Pro Gly Arg Ile His Leu Ile Glu Thr  
 1345 1350 1355 136

09040345 082700  
 002280 9404560

His His Pro His Thr Pro Leu Pro Leu Thr Gln Leu Thr Thr Leu His  
 1365 1370 1375

Gln Pro His Leu Arg Leu Thr Asn Asn Thr Leu His Thr Pro His Leu  
 1380 1385 1390

Thr Pro Ile Thr Thr His His Asn Thr Thr Thr Thr Thr Pro Asn Thr  
 1395 1400 1405

Pro Pro Leu Asn Pro Asn His Ala Ile Leu Ile Thr Gly Gly Ser Gly  
 1410 1415 1420

Thr Leu Ala Gly Ile Leu Ala Arg His Leu Asn His Pro His Thr Tyr  
 425 1430 1435 144

Leu Leu Ser Arg Thr Pro Pro Pro Pro Thr Thr Pro Gly Thr His Ile  
 1445 1450 1455

Pro Cys Asp Leu Thr Asp Pro Thr Gln Ile Thr Gln Ala Leu Thr His  
 1460 1465 1470

Ile Pro Gln Pro Leu Thr Gly Ile Phe His Thr Ala Ala Thr Leu Asp  
 1475 1480 1485

Asp Ala Thr Leu Thr Asn Leu Thr Pro Gln His Leu Thr Thr Thr Leu  
 1490 1495 1500

Gln Pro Lys Ala Asp Ala Ala Trp His Leu His His His Thr Gln Asn  
 505 1510 1515 152

Gln Pro Leu Thr His Phe Val Leu Tyr Ser Ser Ala Ala Ala Thr Leu  
 1525 1530 1535

Gly Ser Pro Gly Gln Ala Asn Tyr Ala Ala Ala Asn Ala Phe Leu Asp  
 1540 1545 1550

Ala Leu Ala Thr His Arg His Thr Gln Gly Gln Pro Ala Thr Thr Ile  
 1555 1560 1565

Ala Trp Gly Met Trp His Thr Thr Thr Thr Leu Thr Ser Gln Leu Thr  
 1570 1575 1580

Asp Ser Asp Arg Asp Arg Ile Arg Arg Gly Gly Phe Leu Pro Ile Ser  
 585 1590 1595 160

Asp Asp Glu Gly Met  
 1605

<210> 34

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding synthetic  
 PKS synthase fragment

Y02280-9FE04560

<220>  
 <221> CDS  
 <222> (1)..(33)

<400> 34  
 ggc cgt ccg cgc cgt gcg gcg gtc tcg tcg ttc 33  
 Gly Arg Pro Arg Arg Ala Ala Val Ser Ser Phe  
 1 5 10

<210> 35  
 <211> 11  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic PKS  
 synthase fragment

<400> 35  
 Gly Arg Pro Arg Arg Ala Ala Val Ser Ser Phe  
 1 5 10

<210> 36  
 <211> 33  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: DNA encoding synthetic  
 PKS synthase fragment

<220>  
 <221> CDS  
 <222> (1)..(33)

<400> 36  
 acc cag cat ccc gcg atg ggt gag cgg ctc gcc 33  
 Thr Gln His Pro Ala Met Gly Glu Arg Leu Ala  
 1 5 10

<210> 37  
 <211> 11  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic PKS  
 synthase fragment

<400> 37  
 Thr Gln His Pro Ala Met Gly Glu Arg Leu Ala  
 1 5 10

"02280" 97E04560

<210> 38  
 <211> 33  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding synthetic  
 PKS synthase fragment

<220>

<221> CDS

<222> (1)..(33)

<400> 38

tac gcc ttc cag cgg cgg ccc tac tgg atc gag  
 Tyr Ala Phe Gln Arg Arg Pro Tyr Trp Ile Glu  
       1                  5                  10

33

<210> 39

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic PKS  
 synthase fragment

<400> 39

Tyr Ala Phe Gln Arg Arg Pro Tyr Trp Ile Glu  
       1                  5                  10

<210> 40

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding synthetic  
 PKS synthase fragment

<220>

<221> CDS

<222> (1)..(33)

<400> 40

gac cgg ccc cgt cgg gcg ggc gtg tgg tcc ttc  
 Asp Arg Pro Arg Arg Ala Gly Val Ser Ser Phe  
       1                  5                  10

33

<210> 41

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

004036 08270  
 002280 9704560

<223> Description of Artificial Sequence: Synthetic PKS  
synthase fragment

<400> 41

Asp Arg Pro Arg Arg Ala Gly Val Ser Ser Phe  
1 5 10

<210> 42

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding synthetic  
PKS synthase fragment

<220>

<221> CDS

<222> (1)..(33)

<400> 42

tgg cag tgg ctg ggg atg ggc agt gcc ctg cgg 33  
Trp Gln Trp Leu Gly Met Gly Ser Ala Leu Arg  
1 5 10

<210> 43

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic PKS  
synthase fragment

<400> 43

Trp Gln Trp Leu Gly Met Gly Ser Ala Leu Arg  
1 5 10

<210> 44

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding synthetic  
PKS synthase fragment

<220>

<221> CDS

<222> (1)..(33)

<400> 44

tac gcc ttc caa cac cag cgg tac tgg gtc gag 33  
Tyr Ala Phe Gln His Gln Arg Tyr Trp Val Glu  
1 5 10

<210> 45  
 <211> 11  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic PKS  
 synthase fragment

<400> 45  
 Tyr Ala Phe Gln His Gln Arg Tyr Trp Val Glu  
 1 5 10

<210> 46  
 <211> 33  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: DNA encoding synthetic  
 PKS synthase fragment

<220>  
 <221> CDS  
 <222> (1)..(33)

<400> 46  
 ggc cga gcg cgc cgg gca ggc gtg tcg tcc ttc 33  
 Gly Arg Ala Arg Arg Ala Gly Val Ser Ser Phe  
 1 5 10

<210> 47  
 <211> 11  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic PKS  
 synthase fragment

<400> 47  
 Gly Arg Ala Arg Arg Ala Gly Val Ser Ser Phe  
 1 5 10

<210> 48  
 <211> 33  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: DNA encoding synthetic  
 PKS synthase fragment

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&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)..(33)

&lt;400&gt; 48

tcg cag cgt gct ggc atg ggt gag gaa ctg gcc

33

Ser Gln Arg Ala Gly Met Gly Glu Glu Leu Ala

1

5

10

&lt;210&gt; 49

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic PKS  
synthase fragment

&lt;400&gt; 49

Ser Gln Arg Ala Gly Met Gly Glu Glu Leu Ala

1

5

10

&lt;210&gt; 50

&lt;211&gt; 33

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: DNA encoding synthetic  
PKS synthase fragment

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)..(33)

&lt;400&gt; 50

tac gcc ttc cag cac cag cgc tac tgg ctc gag

33

Tyr Ala Phe Gln His Gln Arg Tyr Trp Leu Glu

1

5

10

&lt;210&gt; 51

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic PKS  
synthase fragment

&lt;400&gt; 51

Tyr Ala Phe Gln His Gln Arg Tyr Trp Leu Glu

1

5

10

T02280" STE0460



<210> 52  
 <211> 33  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: DNA encoding synthetic  
 PKS synthase fragment

<220>  
 <221> CDS  
 <222> (1)..(33)

<400> 52  
 gcg cga ccg cgc cgg gcg ggg gtc tcg tcg ttc 33  
 Ala Arg Pro Arg Arg Ala Gly Val Ser Ser Phe  
 1 5 10

<210> 53  
 <211> 11  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic PKS  
 synthase fragment

<400> 53  
 Ala Arg Pro Arg Arg Ala Gly Val Ser Ser Phe  
 1 5 10

<210> 54  
 <211> 33  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: DNA encoding synthetic  
 PKS synthase fragment

<220>  
 <221> CDS  
 <222> (1)..(33)

<400> 54  
 tgg cag tgg gcg ggc atg gcc gtc gac ctg ctc 33  
 Trp Gln Trp Ala Gly Met Ala Val Asp Leu Leu  
 1 5 10

<210> 55  
 <211> 11  
 <212> PRT  
 <213> Artificial Sequence

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&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic PKS  
synthase fragment

&lt;400&gt; 55

Trp Gln Trp Ala Gly Met Ala Val Asp Leu Leu  
1 5 10

&lt;210&gt; 56

&lt;211&gt; 33

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: DNA encoding synthetic  
PKS synthase fragment

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)..(33)

&lt;400&gt; 56

tac ccg ttc cag cgc gag cgc gtc tgg ctc gaa 33  
Tyr Pro Phe Gln Arg Glu Arg Val Trp Leu Glu  
1 5 10

&lt;210&gt; 57

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic PKS  
synthase fragment

&lt;400&gt; 57

Tyr Pro Phe Gln Arg Glu Arg Val Trp Leu Glu  
1 5 10

&lt;210&gt; 58

&lt;211&gt; 33

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: DNA encoding synthetic  
PKS synthase fragment

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)..(33)

T02280" STE04650

&lt;400&gt; 58

gac ggg gtg cgc cgg gca ggt gtg tcg gcg ttc  
 Asp Gly Val Arg Arg Ala Gly Val Ser Ala Phe  
     1                    5                    10

33

&lt;210&gt; 59

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic PKS  
 synthase fragment

&lt;400&gt; 59

Asp Gly Val Arg Arg Ala Gly Val Ser Ala Phe  
     1                    5                    10

&lt;210&gt; 60

&lt;211&gt; 33

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: DNA encoding synthetic  
 PKS synthase fragment

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)..(33)

&lt;400&gt; 60

gcc cag tgg gaa ggc atg gcg cgg gag ttg ttg  
 Ala Gln Trp Glu Gly Met Ala Arg Glu Leu Leu  
     1                    5                    10

33

&lt;210&gt; 61

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic PKS  
 synthase fragment

&lt;400&gt; 61

Ala Gln Trp Glu Gly Met Ala Arg Glu Leu Leu  
     1                    5                    10

&lt;210&gt; 62

&lt;211&gt; 33

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

T02200"STE04660

50 55 60

gaa gcg ctc gac gag cag atc cgc cga ctg cgc gcc tac ctg gac acc 239  
 Glu Ala Leu Asp Glu Gln Ile Arg Arg Leu Arg Ala Tyr Leu Asp Thr  
     65                    70                    75

acc ccg gac gtc gac cgg gtg gcc gtg gca cag acg ctg gcc cgg cgc 287  
 Thr Pro Asp Val Asp Arg Val Ala Val Ala Gln Thr Leu Ala Arg Arg  
     80                    85                    90                    95

aca cac ttc gcc cac cgc gcc gtg ctg ctc ggt gac acc gtc atc acc 335  
 Thr His Phe Ala His Arg Ala Val Leu Leu Gly Asp Thr Val Ile Thr  
                     100                    105                    110

aca ccc ccc gcg gac cgg ccc gac gaa ctc gtc ttc gtc tac tcc ggc 383  
 Thr Pro Pro Ala Asp Arg Pro Asp Glu Leu Val Phe Val Tyr Ser Gly  
                     115                    120                    125

cag ggc acc cag cat ccc gcg atg ggc gag cag ctc gcc gcc gcc cat 431  
 Gln Gly Thr Gln His Pro Ala Met Gly Glu Gln Leu Ala Ala Ala His  
                     130                    135                    140

ccc gtg ttc gcc gac gcc tgg cat gaa gcg ctc cgc cgc ctt gac aac c 480  
 Pro Val Phe Ala Asp Ala Trp His Glu Ala Leu Arg Arg Leu Asp Asn  
                     145                    150                    155

<210> 65

<211> 159

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic PKS  
 synthase fragment

<400> 65

Gly Ala Val Glu Leu Leu Thr Ser Ala Arg Pro Trp Pro Glu Thr Asp  
     1                    5                    10                    15

Arg Pro Arg Arg Ala Ala Val Ser Ser Phe Gly Val Ser Gly Thr Asn  
                     20                    25                    30

Ala His Val Ile Leu Glu Ala Gly Pro Val Thr Glu Thr Pro Ala Ala  
                     35                    40                    45

Ser Pro Ser Gly Asp Leu Pro Leu Leu Val Ser Ala Arg Ser Pro Glu  
     50                    55                    60

Ala Leu Asp Glu Gln Ile Arg Arg Leu Arg Ala Tyr Leu Asp Thr Thr  
     65                    70                    75                    80

Pro Asp Val Asp Arg Val Ala Val Ala Gln Thr Leu Ala Arg Arg Thr  
                     85                    90                    95

His Phe Ala His Arg Ala Val Leu Leu Gly Asp Thr Val Ile Thr Thr  
                     100                    105                    110

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Pro Pro Ala Asp Arg Pro Asp Glu Leu Val Phe Val Tyr Ser Gly Gln  
 115 120 125

Gly Thr Gln His Pro Ala Met Gly Glu Gln Leu Ala Ala Ala His Pro  
 130 135 140

Val Phe Ala Asp Ala Trp His Glu Ala Leu Arg Arg Leu Asp Asn  
 145 150 155

<210> 66

<211> 120

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding synthetic  
 PKS synthase fragment

<220>

<221> CDS

<222> (3)..(119)

<400> 66

tc ctc ggg gct ggg tca cgg cac gac gcg gat gtg ccc gcg tac gcg 47  
 Leu Gly Ala Gly Ser Arg His Asp Ala Asp Val Pro Ala Tyr Ala  
 1 5 10 15

ttc caa cgg cgg cac tac tgg atc gag tgg gca cgc ccg gcc gca tcc 95  
 Phe Gln Arg Arg His Tyr Trp Ile Glu Ser Ala Arg Pro Ala Ala Ser  
 20 25 30

gac gcg ggc cac ccc gtg ctg ggc t 120  
 Asp Ala Gly His Pro Val Leu Gly  
 35

<210> 67

<211> 39

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic PKS  
 synthase fragment

<400> 67

Leu Gly Ala Gly Ser Arg His Asp Ala Asp Val Pro Ala Tyr Ala Phe  
 1 5 10 15

Gln Arg Arg His Tyr Trp Ile Glu Ser Ala Arg Pro Ala Ala Ser Asp  
 20 25 30

Ala Gly His Pro Val Leu Gly  
 35

00940315 082701

&lt;210&gt; 68

&lt;211&gt; 480

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: DNA encoding synthetic  
PKS synthase fragment

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)..(480)

&lt;400&gt; 68

tcg gcc agg ccg tgg ccg cgg acc ggc cgt ccg cgc cgt gcg gcg gtc	48
Ser Ala Arg Pro Trp Pro Arg Thr Gly Arg Pro Arg Arg Ala Ala Val	
1 5 10 15	
tcg tcg ttc ggg gtg agc ggc acc aac gcc cac atc atc ctg gag gcc	96
Ser Ser Phe Gly Val Ser Gly Thr Asn Ala His Ile Ile Leu Glu Ala	
20 25 30	
gga ccc gac cag gag gag ccg tcg gca gaa ccg gcc ggt gac ctc ccg	144
Gly Pro Asp Gln Glu Glu Pro Ser Ala Glu Pro Ala Gly Asp Leu Pro	
35 40 45	
ctg ctc gtg tcg gca cgg tcc ccg gag gca ctg gac gag cag atc ggg	192
Leu Leu Val Ser Ala Arg Ser Pro Glu Ala Leu Asp Glu Gln Ile Gly	
50 55 60	
cgc ctg cgc gac tat ctc gac gcc gcc ccc ggc gtg gac ctg gcg gcc	240
Arg Leu Arg Asp Tyr Leu Asp Ala Ala Pro Gly Val Asp Leu Ala Ala	
65 70 75 80	
gtg gcg cgg aca ctg gcc acg cgt acg cac ttc tcc cac cgc gcc gta	288
Val Ala Arg Thr Leu Ala Thr Arg Thr His Phe Ser His Arg Ala Val	
85 90 95	
ctg ctc ggt gac acc gtc atc acc gct ccc ccc gtg gaa cag ccg ggc	336
Leu Leu Gly Asp Thr Val Ile Thr Ala Pro Pro Val Glu Gln Pro Gly	
100 105 110	
gag ctc gtc ttc gtc tac tcg gga cag ggc acc cag cat ccc gcg atg	384
Glu Leu Val Phe Val Tyr Ser Gly Gln Gly Thr Gln His Pro Ala Met	
115 120 125	
ggt gag cgg ctc gcc gca gcc ttc ccc gtg ttc gcc gac ccg gac gta	432
Gly Glu Arg Leu Ala Ala Ala Phe Pro Val Phe Ala Asp Pro Asp Val	
130 135 140	
ccc gcc tac gcc ttc cag cgg cgg ccc tac tgg atc gag tcc gcg ccg	480
Pro Ala Tyr Ala Phe Gln Arg Arg Pro Tyr Trp Ile Glu Ser Ala Pro	
145 150 155 160	

&lt;210&gt; 69

&lt;211&gt; 160

&lt;212&gt; PRT

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<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic PKS synthase fragment

<400> 69

Ser Ala Arg Pro Trp Pro Arg Thr Gly Arg Pro Arg Arg Ala Ala Val  
1 5 10 15

Ser Ser Phe Gly Val Ser Gly Thr Asn Ala His Ile Ile Leu Glu Ala  
20 25 30

Gly Pro Asp Gln Glu Glu Pro Ser Ala Glu Pro Ala Gly Asp Leu Pro  
35 40 45

Leu Leu Val Ser Ala Arg Ser Pro Glu Ala Leu Asp Glu Gln Ile Gly  
50 55 60

Arg Leu Arg Asp Tyr Leu Asp Ala Ala Pro Gly Val Asp Leu Ala Ala  
65 70 75 80

Val Ala Arg Thr Leu Ala Thr Arg Thr His Phe Ser His Arg Ala Val  
85 90 95

Leu Leu Gly Asp Thr Val Ile Thr Ala Pro Pro Val Glu Gln Pro Gly  
100 105 110

Glu Leu Val Phe Val Tyr Ser Gly Gln Gly Thr Gln His Pro Ala Met  
115 120 125

Gly Glu Arg Leu Ala Ala Ala Phe Pro Val Phe Ala Asp Pro Asp Val  
130 135 140

Pro Ala Tyr Ala Phe Gln Arg Arg Pro Tyr Trp Ile Glu Ser Ala Pro  
145 150 155 160

<210> 70

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding synthetic PKS synthase fragment

<220>

<221> CDS

<222> (1)..(60)

<400> 70

gac ccg gac gta ccc gcc tac gcc ttc cag cgg cgg ccc tac tgg atc 48  
Asp Pro Asp Val Pro Ala Tyr Ala Phe Gln Arg Arg Pro Tyr Trp Ile  
1 5 10 15

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gag tcc gcg ccg  
Glu Ser Ala Pro  
20

60

<210> 71  
<211> 20  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic PKS  
synthase fragment

<400> 71  
Asp Pro Asp Val Pro Ala Tyr Ala Phe Gln Arg Arg Pro Tyr Trp Ile  
1 5 10 15

Glu Ser Ala Pro  
20

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